

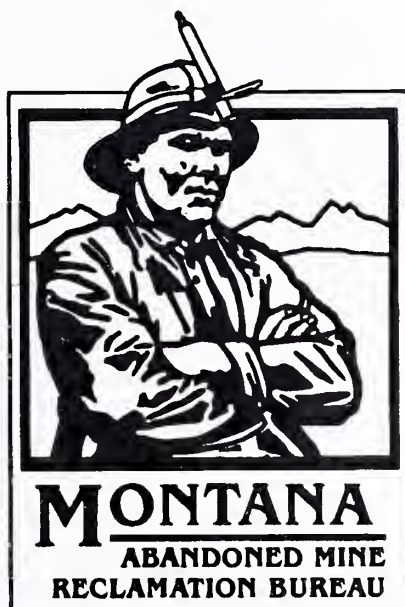
622.33  
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# **SOUTHEAST PROJECT**

**DSL - AMRB No. 90-018**

## **FINAL REPORT**

**Custer, Powder River, Rosebud, Treasure  
and Musselshell Counties, Montana**



**February 28th, 1991**

**SPECTRUM ENGINEERING**

**Billings, Montana**



# SPECTRUM ENGINEERING

March 5th, 1991

Dan Koszuta  
Abandoned Mine Reclamation Bureau  
Montana Department of State Lands  
1625 Eleventh Avenue  
Helena, MT 59620

RECEIVED  
JUL 28 1991  
STATE LANDS

Re: Southeast Project

Dear Dan:

Enclosed are the original full scale mylars for the Southeast Project. Also enclosed are a few slides which were developed late and did not get in with the other slides in the final report.

We have nothing left in our office on the Southeast Project. If you have any questions, please give me a call.

Sincerely,



William C. Maehl, P.E.  
Vice-President

Enc. Site Plan mylars and slides

STATE DOCUMENTS COLLECTION

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1515 E. 6th AVE.  
HELENA, MONTANA 59620





# SPECTRUM ENGINEERING

December 12, 1991

MEMO:

TO: Dan Koszuta  
FROM: David Murja *DM*  
RE: JOPPA SITE MAINTENANCE

RECEIVED  
DEC 17 1991  
STATE LANDS

The Joppa site consisting of a single adit is located in Section 24 of T6N, R43E in Rosebud County. This site was included in the southeast project DSL-AMRB No. 90-018. Construction records indicate that the portal was blocked by hand backfilling on December 11, 1990. Baxter Construction was the contractor. A final inspection was not conducted for this project and post construction pictures were not taken.

On November 16, 1991, Gary Rome (Spectrum Engineering) inspected this site after Dan Koszuta (DSL-AMRB) reported that he had observed what appeared to be an open adit while flying over this site in a helicopter. Gary found an opening which inclined into the adit. The opening was large enough for a man to squeeze through. Ed Baxter was subsequently contacted and informed that it was Baxter Construction's responsibility to rectify the situation.

Baxter remembered closing the adit when the opening was large enough for a man to stoop down and walk through. He recalled the site access and camping near the site during construction. Based on our observations of the site and our conversation with Ed Baxter, we are confident that the adit had been plugged in the previous year. However the materials used and the depth of placement were not substantial enough to prevent the adit from re-opening or being reopened by children or animals.

On December 11, 1991, I accompanied Ed Baxter and a laborer to the Joppa site. Baxter used a pneumatic drill with a 6 foot bit to drill several holes in the soft sandstone where the portal is located. The holes were loaded with dynamite and the opening was blasted shut. Including travel time the operation took about 7.5 hours.

Initially two horizontal holes were drilled. One hole was above the opening the other hole was to the side of the opening. These holes were charged with explosives; but, the blast failed to close the opening. The loosened material was pushed down into the open adit.

Finally two vertical holes were drilled directly above the portal. These holes were charged and ignited. The thick sandstone bed above the coal seam was fractured by the blast sealing the opening and kicking out several large blocks of sandstone. A series of photographs documenting construction is enclosed. I anticipate some additional caving around the adit due to the weakness of the materials and the amount of fracturing. I suggest checking this site again in the summer.

DM/pm  
c: Baxter Construction  
Enc.



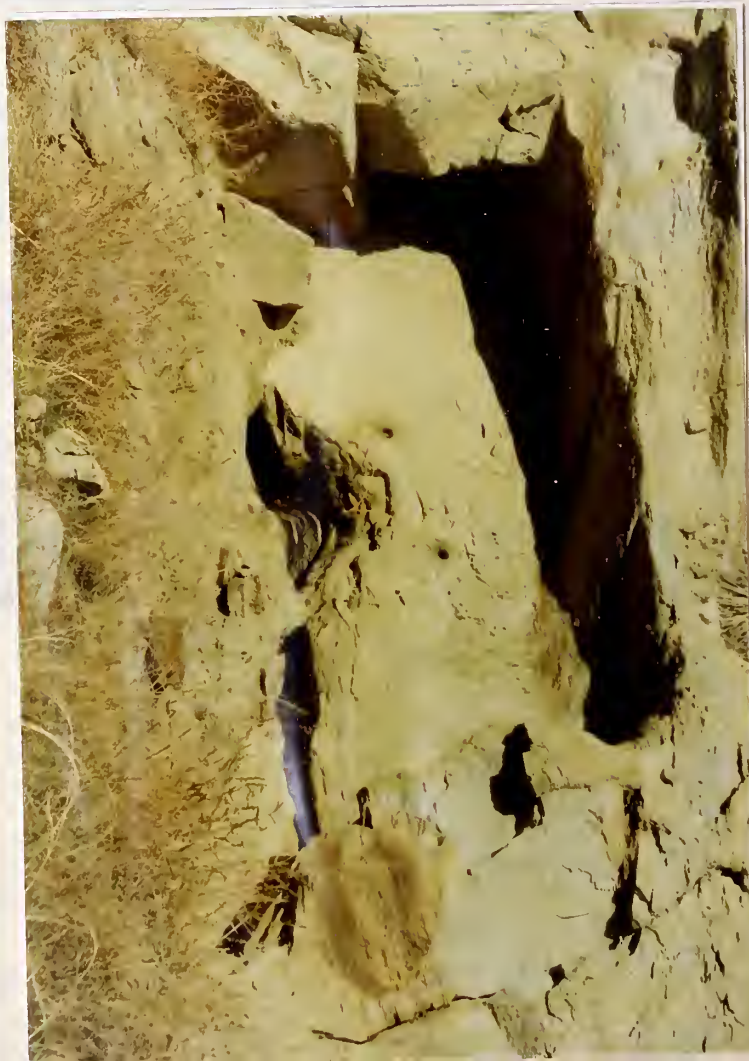
Digitized by the Internet Archive  
in 2014

<https://archive.org/details/southeastproject1991spec>















Topso Maintenance  
T6N, R43E Sec 24  
December 11, 1991









**FINAL REPORT**

**SOUTHEAST PROJECT  
DSL - AMRB No. 90-018**

**Treasure, Custer, Powder River, Rosebud  
and Musselshell Counties, Montana**



## **FINAL REPORT**

### **SOUTHEAST PROJECT**

**DSL - AMRB No. 90-018**

**Treasure, Custer, Powder River, Rosebud  
and Musselshell Counties, Montana**

#### **Sites Located in Southeastern Montana**

**Wilson: T02N, R38E, Section 5**

**No. 2: T13N, R45E, Section 29**

**FTY Ranch: T08S, R46E, Section 13**

**Bryan: T03S, R46E, Section 18**

**Coal Creek: T03S, R45E, Section 3**

**Gustavsen: T04S, R47E, Section 18**

**Trusler: T03S, R44E, Section 13**

**Joppa: T06N, R43E, Section 24**

**Mees: T04N, R43E, Section 24**

**McKay: T01S, R41E, Section 34  
T02S, R41E, Section 3**

**Klein Maintenance: T08N, R26E, Section 36**

**Big Union Maintenance: T07N, R26E, Section 4**

**February 28th, 1991**

**Spectrum Engineering  
Billings, Montana**



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# SOUTHEAST PROJECT FINAL REPORT

## 1. INTRODUCTION

### 1.1 Project Description

This project consisted of 10 small abandoned coal mines located in southeastern Montana in Treasure, Custer, Powder River, and Rosebud County. The need for this project was to protect human health and safety caused by dangerous openings and to prevent environmental degradation.

In addition to the 10 project sites, another two sites from a previous bid package had maintenance performed in Musselshell County.

#### 1.1.1 Location and Access

COUNTY	SITE	TOWNSHIP	RANGE	SECTION	SUBSECTION	LATITUDE	LONGITUDE
Treasure	Wilson	T02N	R38E	5	N½, SW¼	45° 56.8'	107° 01.7'
Custer	NO. 2	T13N	R45E	29	SE¼, NW¼	46° 51.3'	106° 03.5'
Powder River	FTY Ranch	T08S	R46E	13	NW¼ NE¼	45° 08.7'	106° 01.7'
	Bryan	T03S	R46E	18	W½ NE¼	45° 34.5'	106° 05.7'
	Coal Creek	T03S	R45E	3	NE¼ NW¼	45° 36.3'	106° 09.4'
	Gustavsen	T04S	R47E	18	NE¼ SW¼	45° 29.0'	106° 58.8'
Rosebud	Trusler	T03S	R44E	13	NW¼ NW¼	45° 35.0'	106° 15.3'
	Joppa	T06N	R43E	24	NW¼ NE¼	46° 15.7'	106° 18.0'
	Mees	T04N	R43E	24	NW¼ NW¼	46° 04.8'	106° 20.1'
	McKay	T01S	R41E	34	SE¼ SW¼	45° 42.2'	106° 39.3'
		T02S	R41E	3	NE¼ NW¼	45° 42.2'	106° 39.3'
Musselshell	Klein	T08N	R26E	36	NW¼ SE¼	46° 24.2'	108° 32.1'
	Big Union	T07N	R26E	4	E½ SW¼	46° 23.1'	108° 02.0'

Some of the sites in this bid package are difficult to find and a written access may not provide the necessary access information. The reader is referred to the Site and Vicinity Maps which follow this section. The access to each of the sites is described below.

#### Wilson

The Wilson site is located about 26 miles south of Hysham. To reach the site, proceed east off the paved Sarpy Creek Road (about 12 miles north of the Sarpy



## **SOUTHEAST PROJECT FINAL REPORT**

Creek coal mine) toward the Wilson residence. Pass near the Wilson residence and follow field roads to the site. Access can be difficult to find. The mine is found on the 7½ minute USGS quadrangle named Minnehaha Creek South.

### **No. 2**

The No. 2 site is located about 30 miles north of Miles City. Access is made by following the Jordan Stage Road about 30 miles north of Miles City and secondary roads for about another 12 miles. Alternately, access is made by proceeding north on the Crow Rock road past Chalk Butte about one-half mile and turning east (right) and going about another half mile on a dirt road. The site is then accessed cross-country. The mine is found on the 7½ minute USGS quad named Crow Rock SE.

### **FTY Ranch**

The site is located 35 miles south of Ashland. Access is made by proceeding south to Fort Howes. From Fort Howes proceed approximately 9 miles southeast to Sayle. From Sayle proceed about 6½ miles south to the turn off in Section 14 (about halfway between the Yonkee cutoff and the Billup School). From the turn off go about 1 mile to the site on a dirt road. The mine is found on the 7½ minute USGS quadrangle named Reanus Cove.

### **Bryan**

The Bryan mine is located 8 miles east of Ashland. The site is accessed by taking US Highway 212 east out of Ashland. Two and one-half miles east of the Red Shale Campground you turn north (left) onto a narrow dirt road. Proceed north on this road for ½ mile to the site. The mine is located on the 7½ minute USGS quadrangle named Coleman Draw.

### **Coal Creek**

The Coal Creek mine is located about 8 miles (by road) northeast of Ashland. Access is made by turning northeast on the Otter Creek road off US Highway 212 about 3 miles east of Ashland. Proceed for about 1½ miles and turn north continuing on a dirt road for almost 2 miles to the site. The abandoned mine site is within the modern day Coal Creek Mine. The mine is located on the USGS quad named Willow Crossing.

### **Gustavsen**

The Gustavsen site is located on private land within the Custer National Forest. Access to the site is made by traveling about 16 miles east on US 212 out of Ashland to the Lemon Springs Campground, then south for about 5½ miles to South Fork Coulee. Access is by turning east (left) on a dirt road for ½ mile. The mine is located on the USGS quadrangle named Threemile Buttes.





# **SOUTHEAST PROJECT FINAL REPORT**

## **Trusler**

The Trusler site is located 1 mile southeast of Ashland. A dirt road turns right (southeast) off of Highway 212 on the outskirts of the town of Ashland. This road follows a ridge line for about 3/4 of a mile to the mine site. The mine is located on the USGS quadrangle named Ashland.

## **Joppa**

The Joppa site is located approximately 7 ½ miles east of Rosebud, between US Interstate Highway 94 and the Burlington Northern railroad tracks. Access is made by following the secondary roads east from the east I-94 Rosebud exit. The mine is located on the USGS quadrangle named Thurlow.

## **Mees**

The Mees mine is about 13 miles south of Rosebud, a mile west of the Butte Creek Road. Access is made to the site by taking the east I-90 Rosebud exit and following the Butte Creek Road south for about 16 miles. Exit this road to the right (west) with the final mile to the site via field road and cross-country. The mine is located on the USGS quadrangle named Crain Place.

## **McKay**

The McKay mine is located south of Colstrip and 5 ½ miles north of Lame Deer. Access is by traveling 15 miles south of Colstrip on Secondary 39 also called Rosebud Creek Road; then about one mile east on a dirt road up Davidson Coulee which is opposite a private airstrip on the McKay Ranch. The mine is located on the USGS quadrangle named Jim Town.

## **Klein (Maintenance Project)**

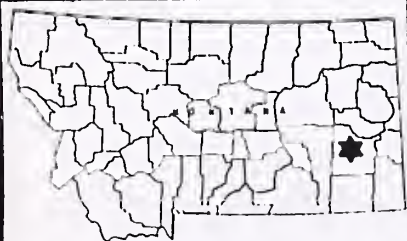
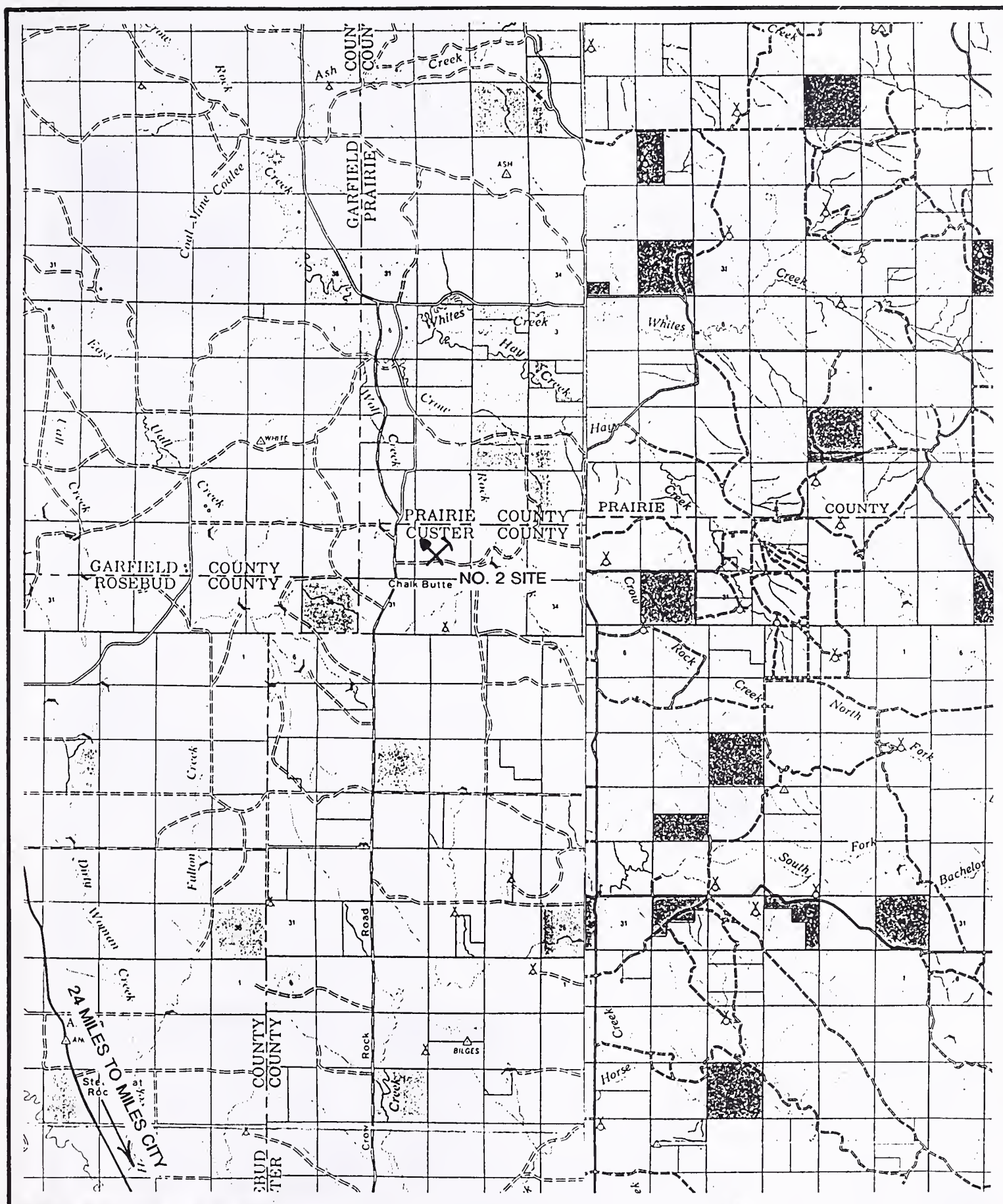
The Klein site is located on the north side of Deadman Coulee, one-half mile east of the town of Klein. Access is at the Klein exit off of US 87 about 3 miles south of Roundup turning left (east) through a locked gate and traveling ½ mile east up Deadman Coulee to the site. The mine is found on the 7 ½ minute quadrangle named Roundup.

## **Big Union (Maintenance Project)**

The Big Union site is located about 6 miles south of Roundup. Access is by going south 6 miles on US 87 from Roundup, and turning left on Western Road. Travel east on Western Road for one and three quarters miles through a locked metal gate. Turn right at a water tank uphill for about a quarter mile to the top of the coal slack area. The mine is located on the 7 ½ minute quadrangle named Gage.







STATE OF MONTANA — DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU—RECLAMATION DIVISION

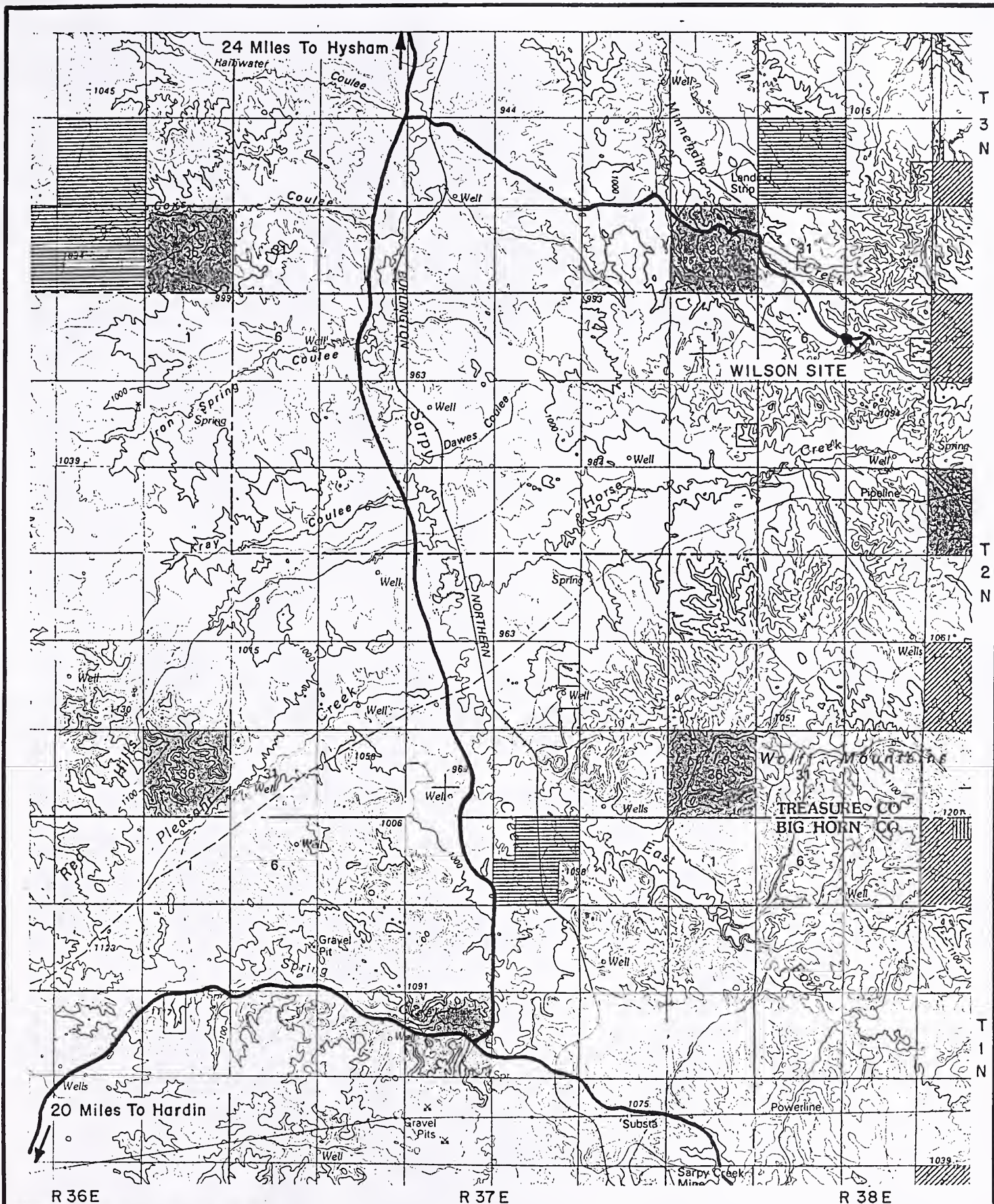
VICINITY MAP

SITE NO. 2  
CUSTER COUNTY, MT; TOWNSHIP 13N RANGE 45E  
 SECTION(S) 29 SENW

MAP SCALE: 1" = 2.5 MILES







STATE OF MONTANA — DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU—RECLAMATION DIVISION

VICINITY MAP

SITE WILSON

TREASURE COUNTY, MT; TOWNSHIP 2N RANGE 38E

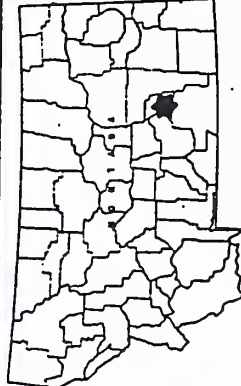
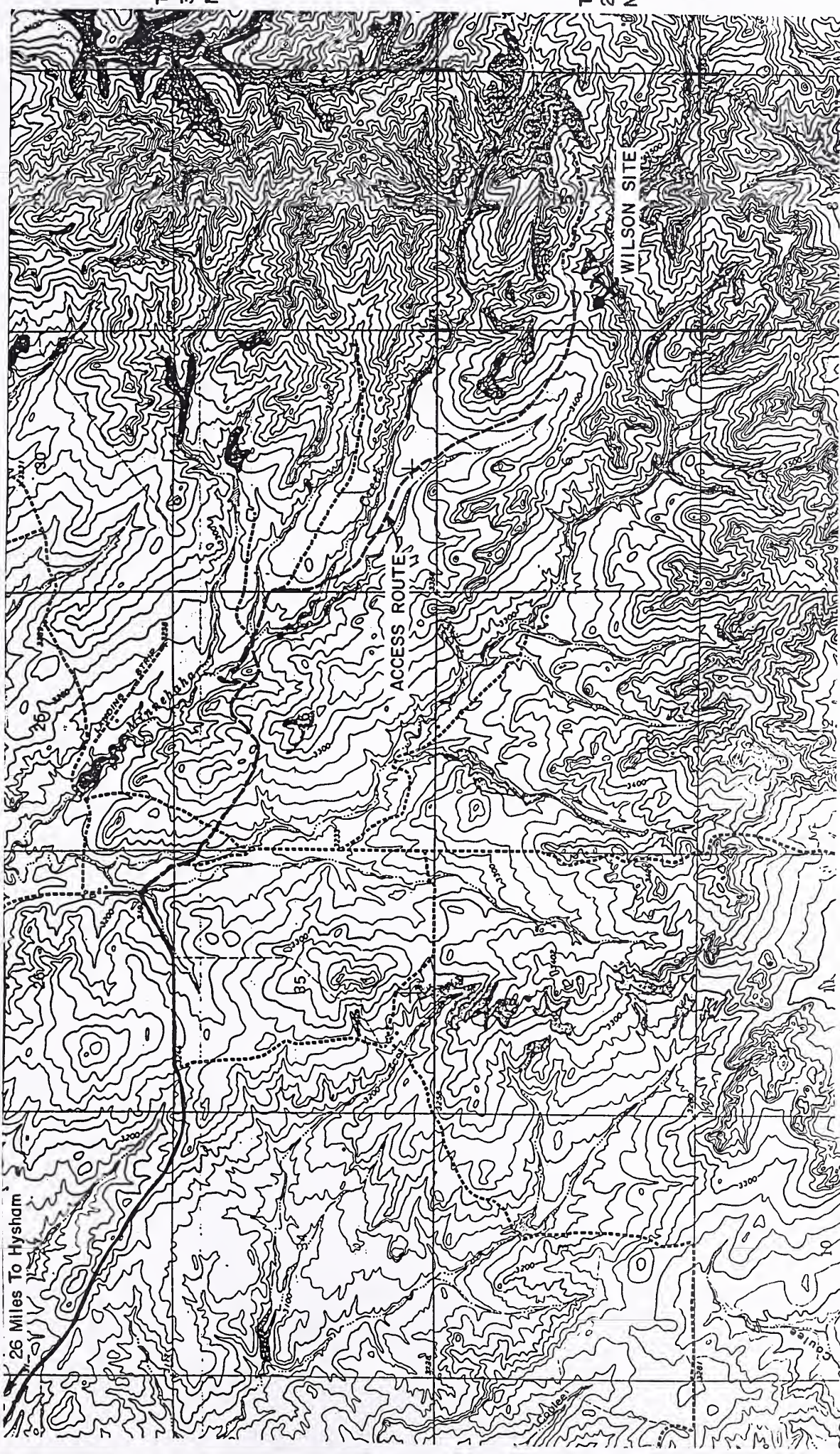
SECTION(S) 5

MAP SCALE: 1" = 1.58 Miles





26 Miles To Hysham



STATE OF MONTANA — DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU — RECLAMATION DIVISION

**SITE MAP**

SITE WILSON

TREASURE 5 NW 4 SW 4 COUNTY, MT, TOWNSHIP 2N RANGE 38 E

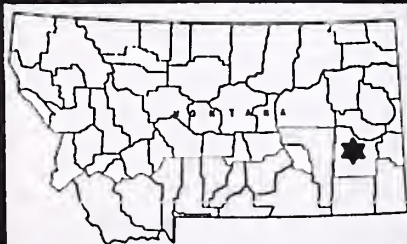
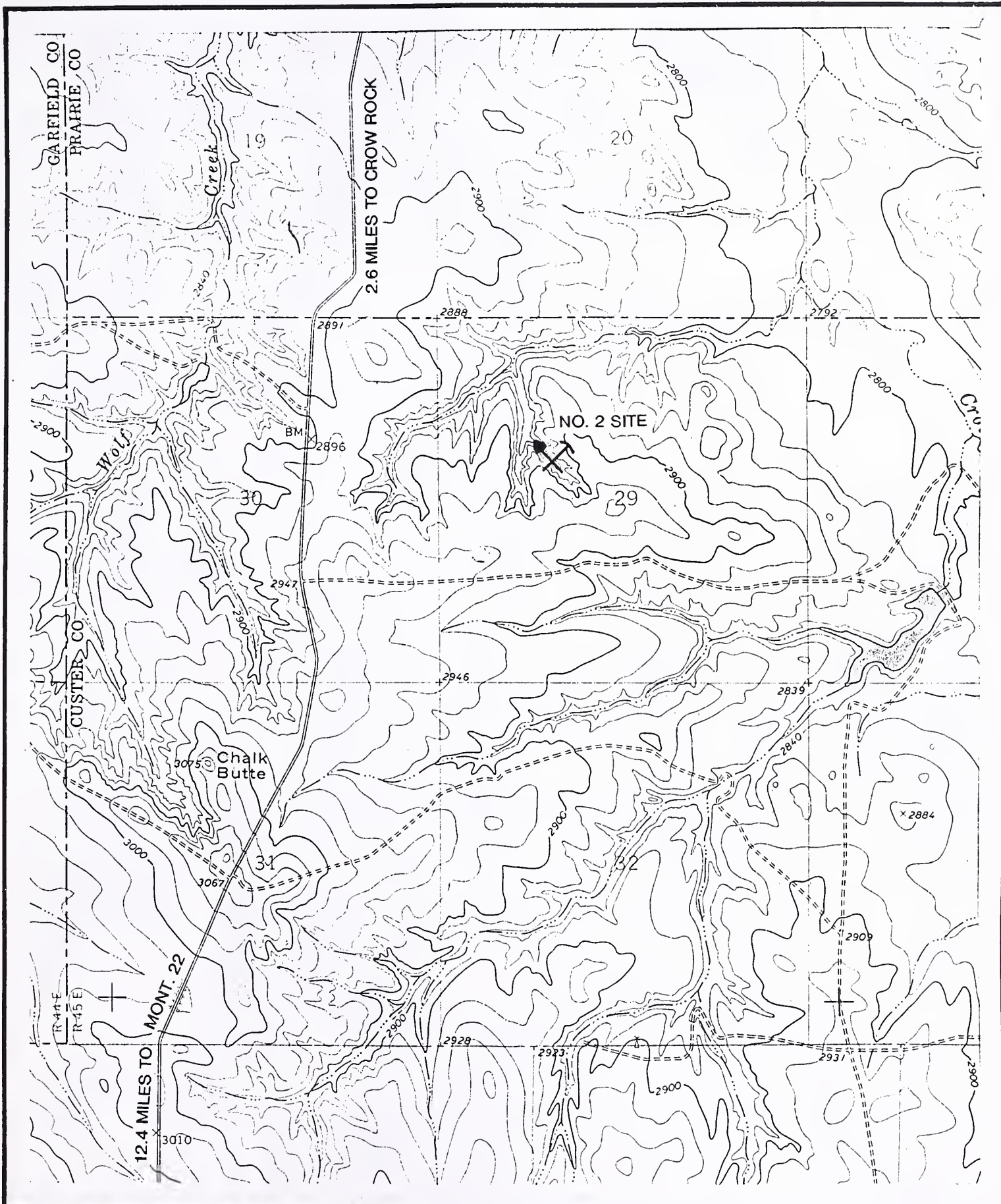
SECTION(S) 5 NW 4 SW 4

MAP SCALE: 1" = 3000' U.S.G.S. QUAD SHEET MINNEHAHA CREEK SOUTH









STATE OF MONTANA — DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU—RECLAMATION DIVISION

SITE MAP

SITE NO. 2

CUSTER

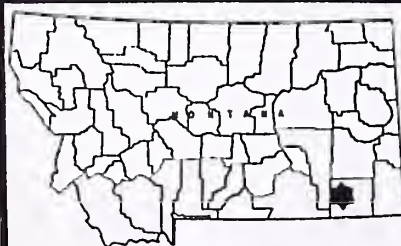
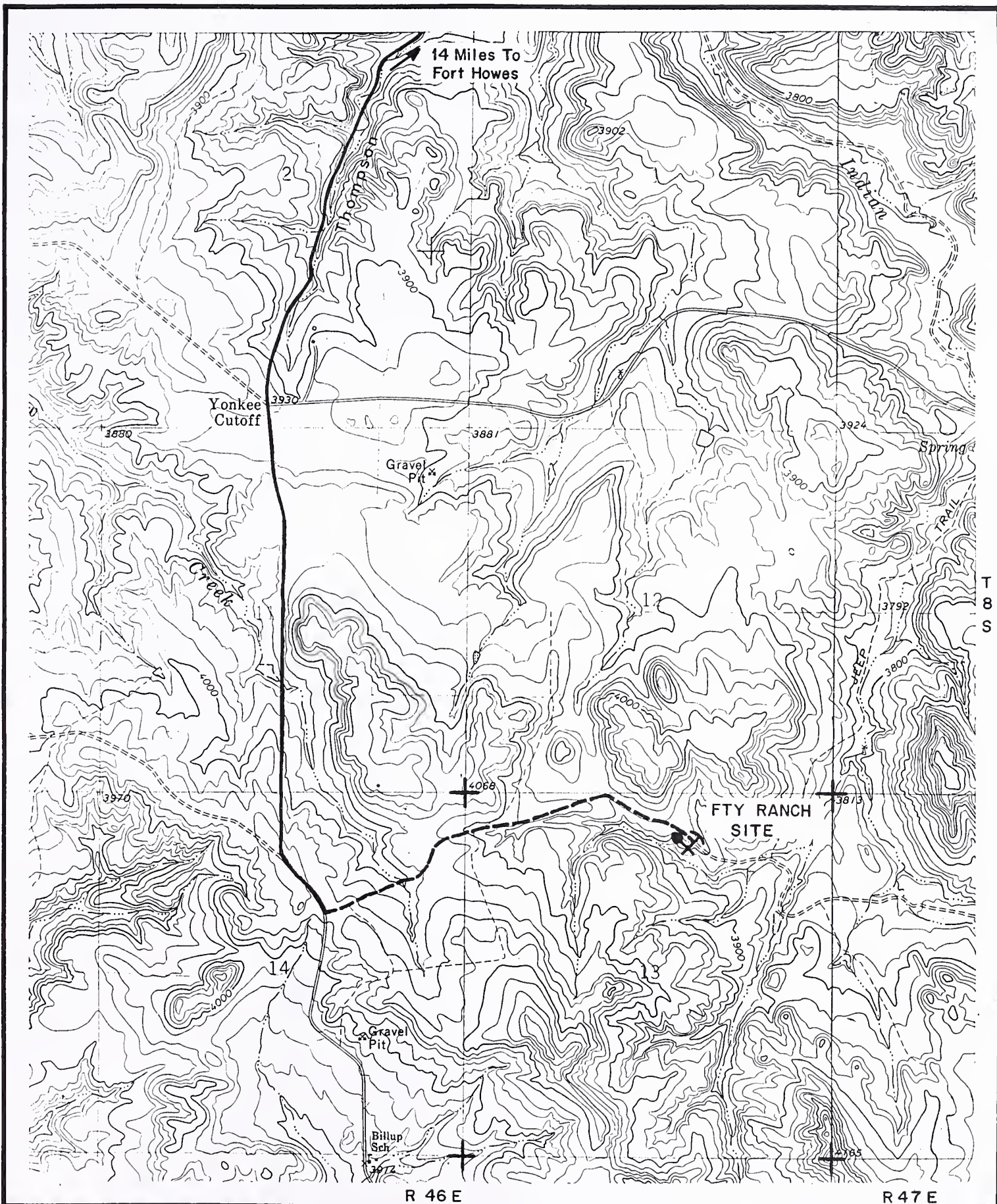
COUNTY, MT; TOWNSHIP 13N RANGE 45E

SECTION(S) 29 SENW

MAP SCALE: 1" = 2000' U.S.G.S. QUAD SHEET CROW ROCK SE.







STATE OF MONTANA — DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU — RECLAMATION DIVISION

### SITE MAP

SITE FTY RANCH

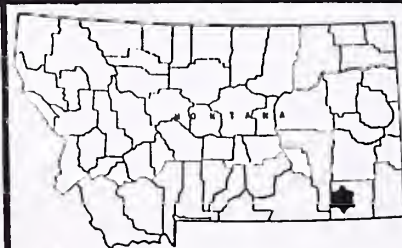
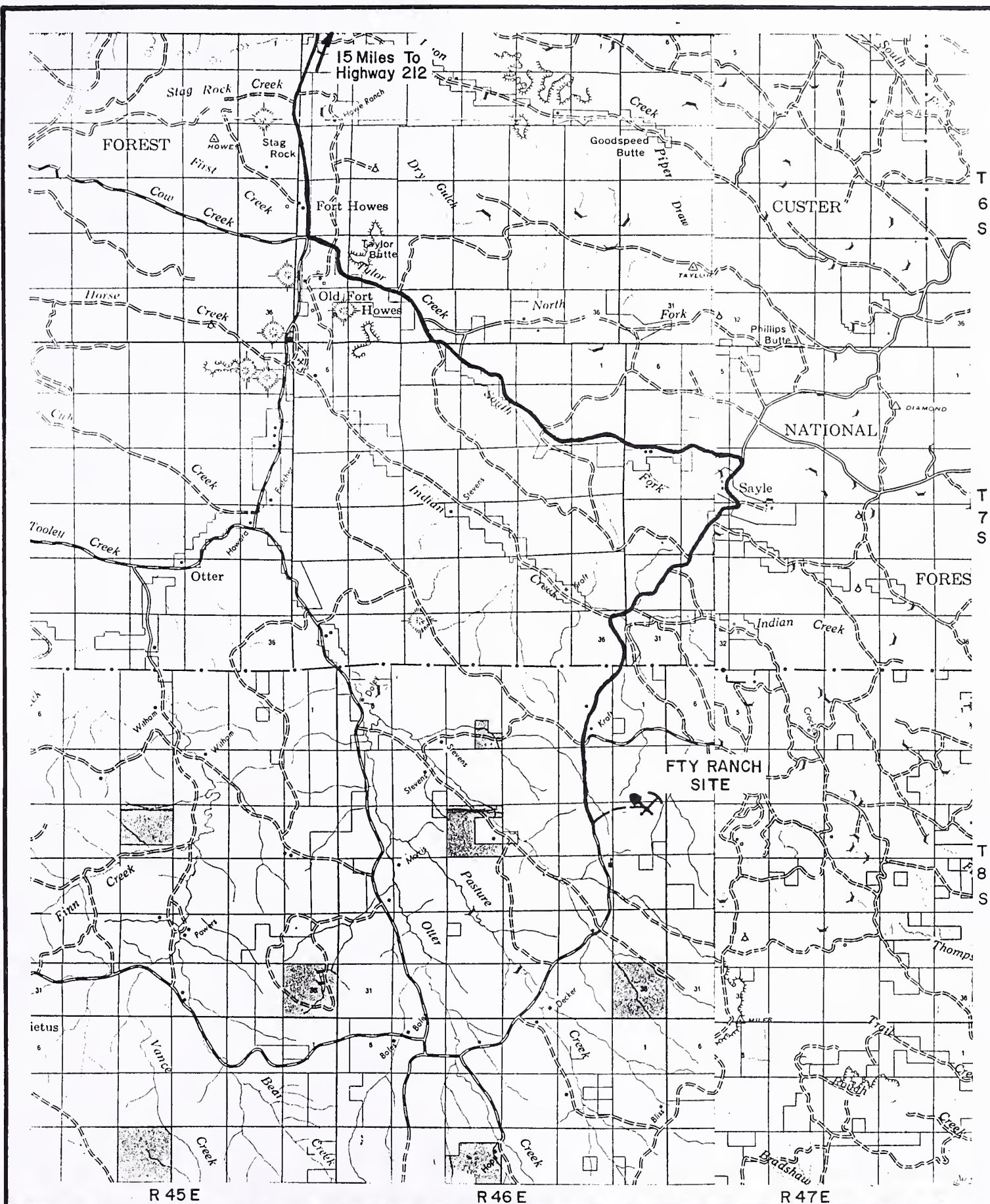
POWDER RIVER COUNTY, MT; TOWNSHIP 8 S RANGE 46 E

SECTION(S) 13 NW4NE4

MAP SCALE: 1" = 2000' U.S.G.S. QUAD SHEET REANUS CONE







STATE OF MONTANA — DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU—RECLAMATION DIVISION

VICINITY MAP

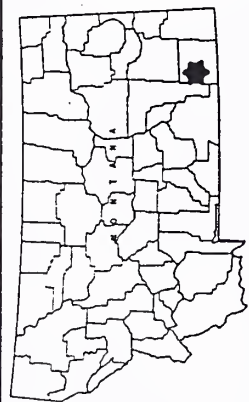
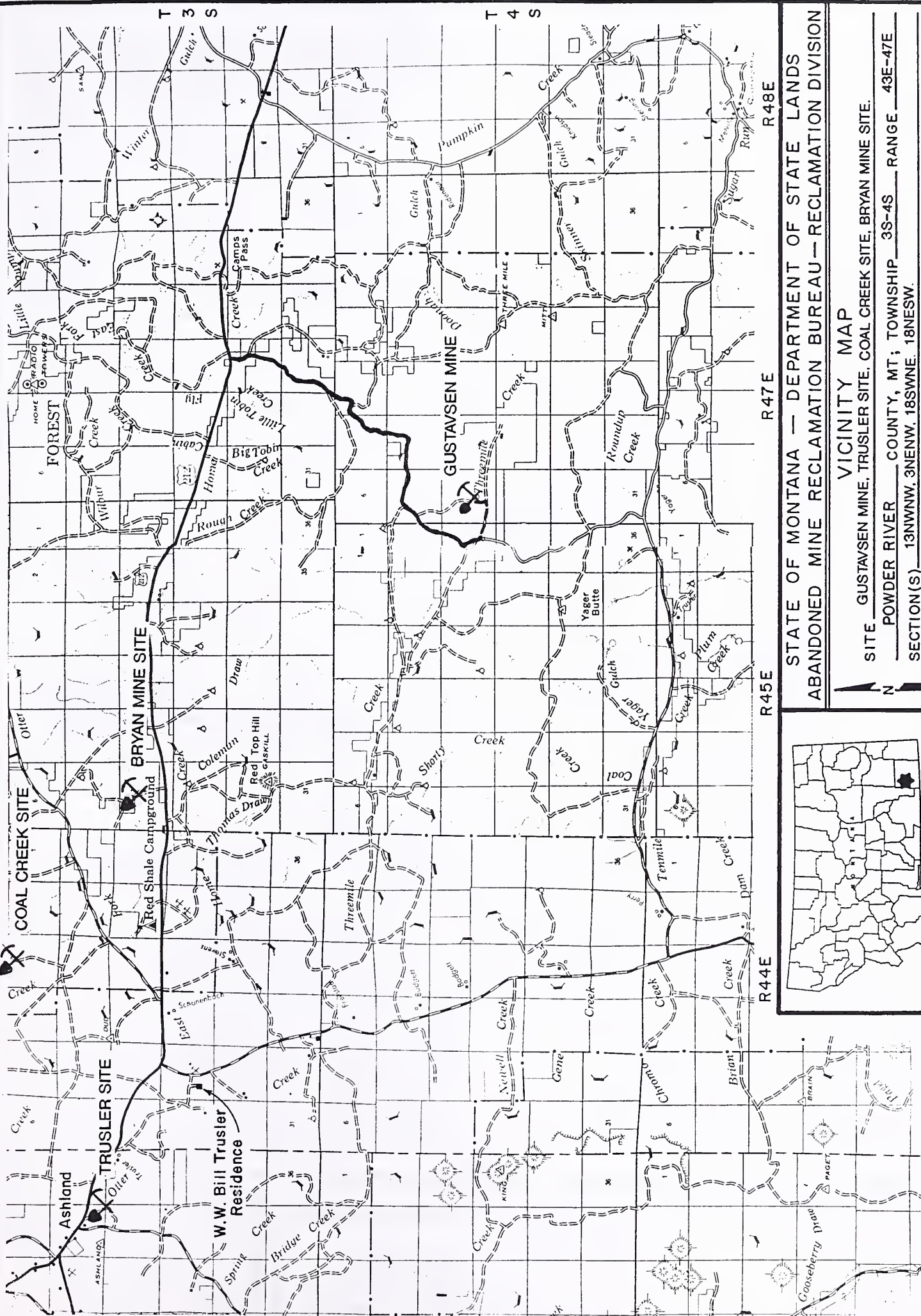
SITE FTY RANCH

POWDER RIVER COUNTY, MT; TOWNSHIP 8 S RANGE 46 E

SECTION(S) 13 NW4NE4

MAP SCALE: 1" = 2.5 Miles





STATE OF MONTANA — DEPARTMENT OF STATE LANDS  
 ABANDONED MINE RECLAMATION BUREAU — RECLAMATION DIVISION

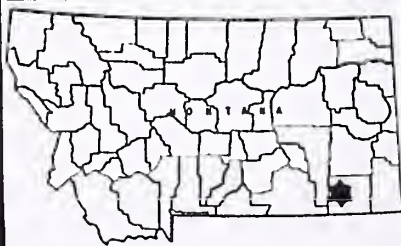
VICINITY MAP

SITE GUSTAVSEN MINE, TRUSLER SITE, COAL CREEK SITE, BRYAN MINE SITE.  
 POWDER RIVER COUNTY, MT.; TOWNSHIP 3S-4S RANGE 43E-47E  
 SECTION(S) 13NWNW, 3NENW, 18SWNE, 18NESW.

MAP SCALE: 1" = 2.5 Miles







STATE OF MONTANA — DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU — RECLAMATION DIVISION

### SITE MAP

SITE BRYAN MINE

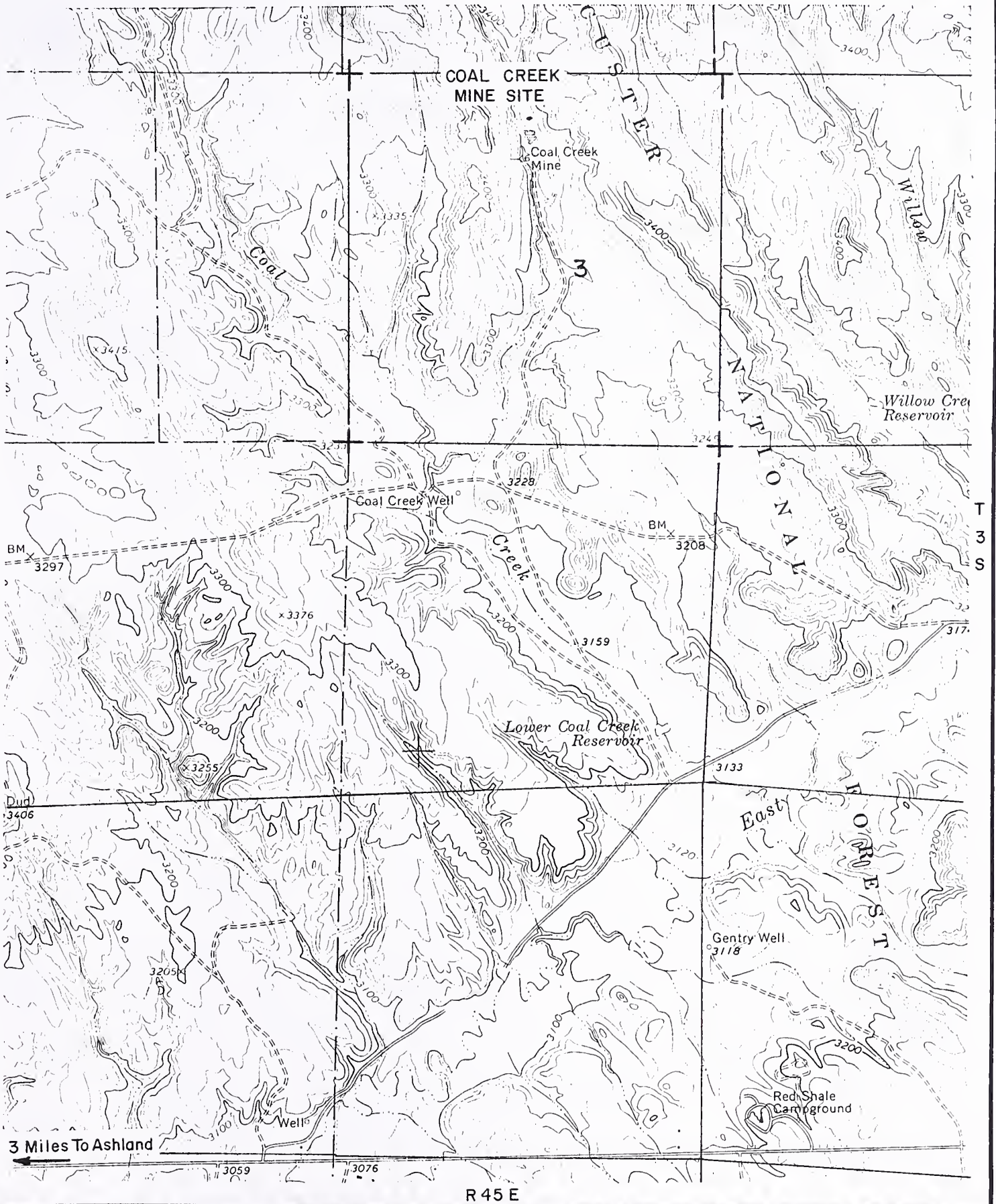
POWDER RIVER COUNTY, MT; TOWNSHIP 3S RANGE 46E

SECTION(S) 18 SW 4 NE 4

MAP SCALE: 1" = 2000' U.S.G.S. QUAD SHEET COLEMAN DRAW







STATE OF MONTANA — DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU — RECLAMATION DIVISION

SITE MAP

SITE COAL CREEK

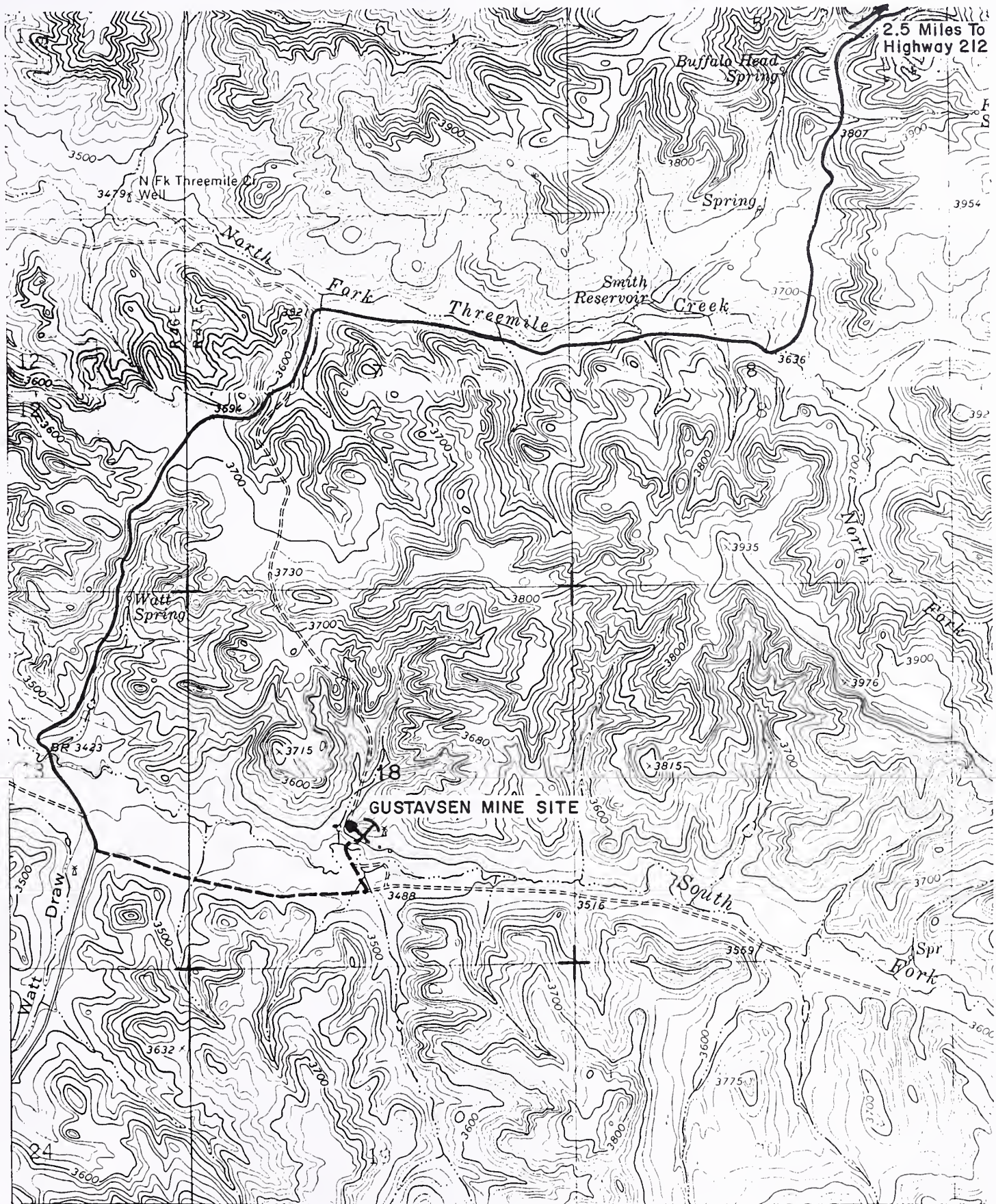
POWDER RIVER COUNTY, MT; TOWNSHIP 3 S RANGE 45 E

SECTION(S) 3

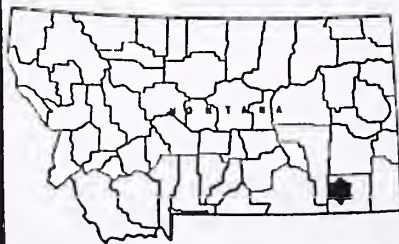
MAP SCALE: 1" = 2000' U.S.G.S. QUAD SHEET WILLOW CROSSING







R 47 E



STATE OF MONTANA — DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU — RECLAMATION DIVISION

### SITE MAP

SITE GUSTAVSEN MINE

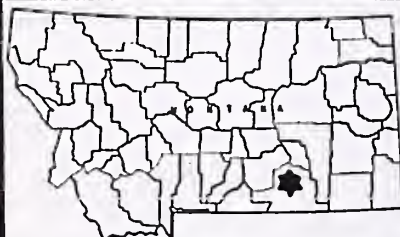
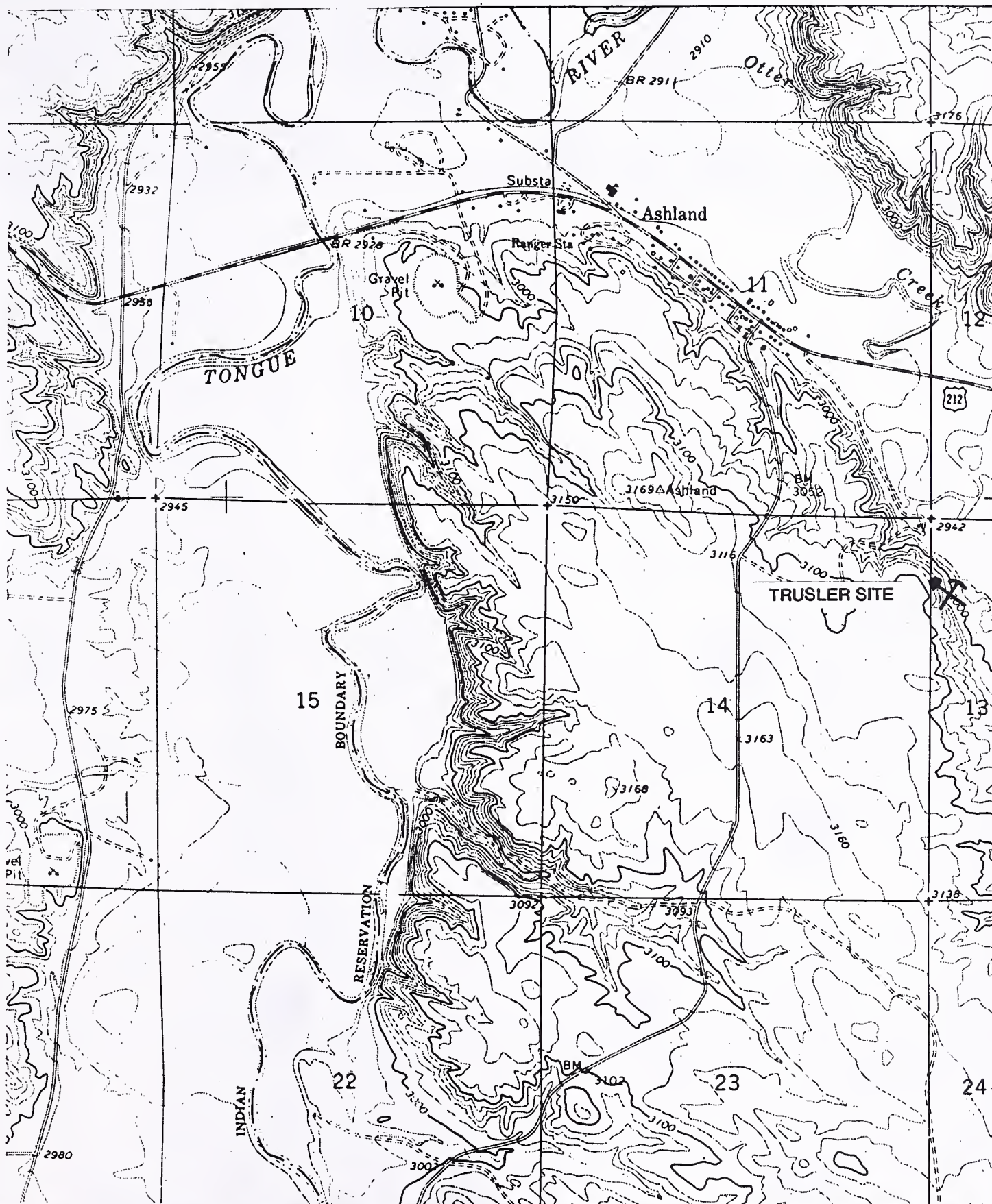
POWDER RIVER COUNTY, MT; TOWNSHIP 4S RANGE 47E

SECTION(S) 18 NE4SW4

MAP SCALE: 1" = 2000' U.S.G.S. QUAD SHEET THREEMILE BUTTES







STATE OF MONTANA — DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU—RECLAMATION DIVISION

SITE MAP

SITE TRUSLER

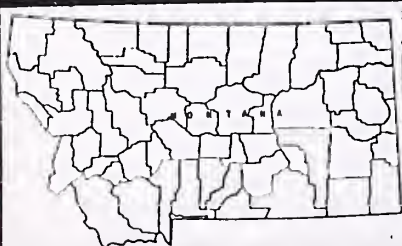
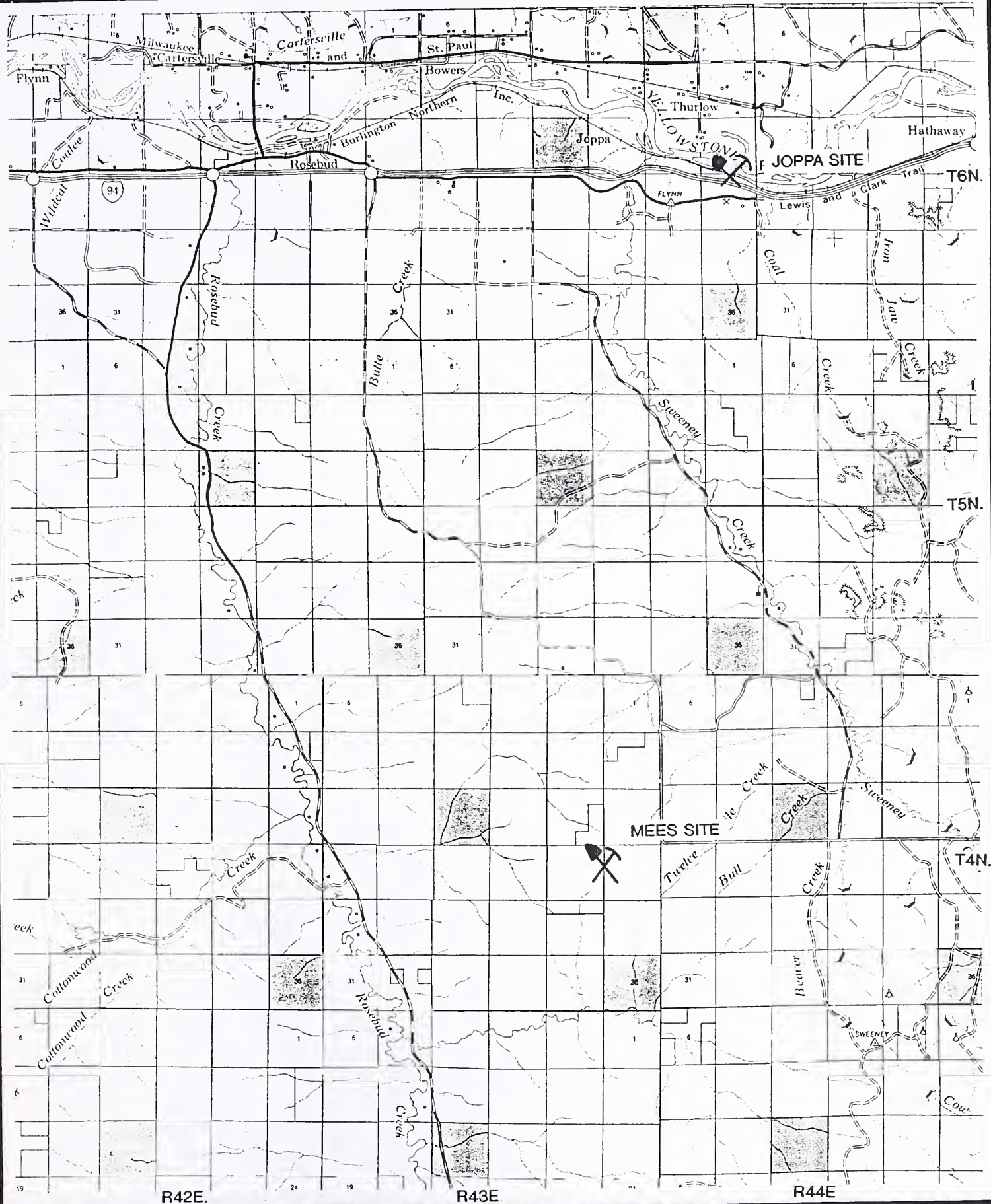
ROSEBUD COUNTY, MT; TOWNSHIP T3S, RANGE R44E

SECTION(S) 13 NW4, NW4

MAP SCALE: 1" = 2000' U.S.G.S. QUAD SHEET ASHLAND







STATE OF MONTANA — DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU—RECLAMATION DIVISION

VICINITY MAP

SITE MEES JOPPA

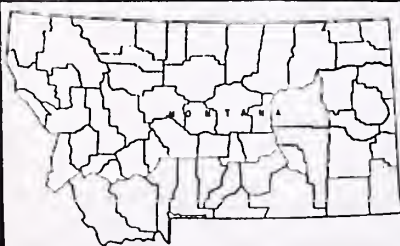
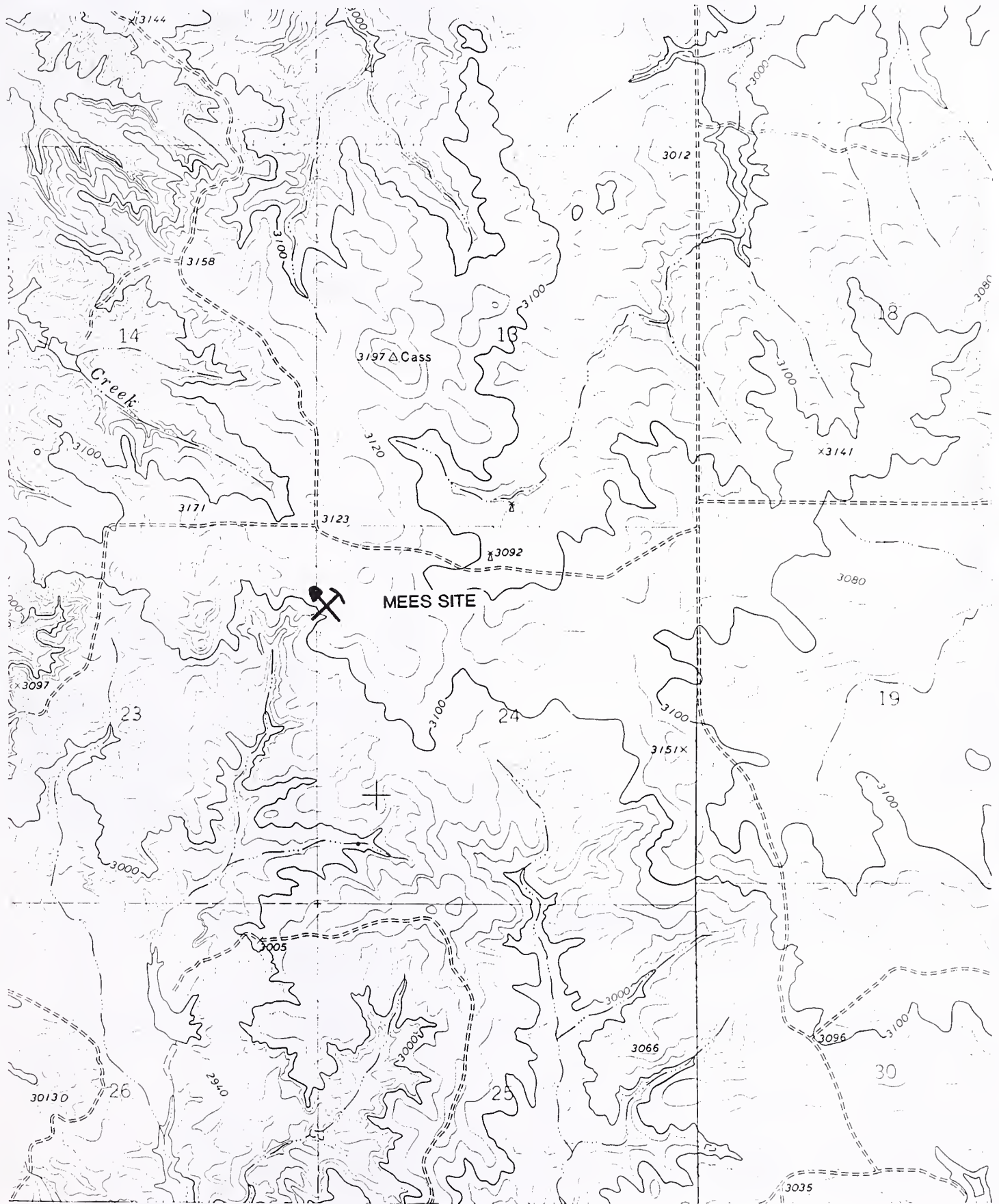
ROSEBUD COUNTY, MT; TOWNSHIP 4N-6N RANGE R43E

SECTION(S) 24 NW4, NW4 24NW4NE4

MAP SCALE: 1" = 2.5 MILES







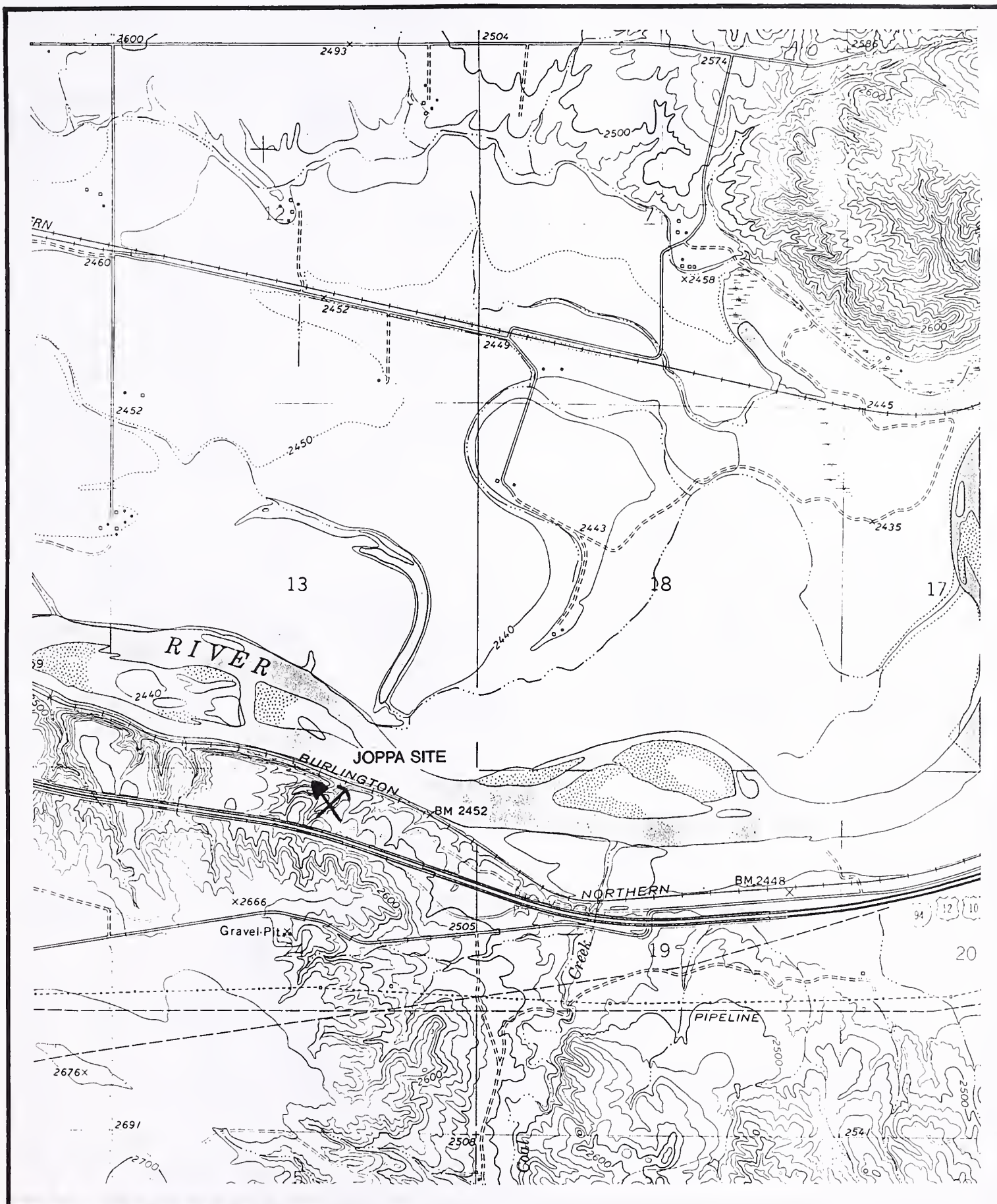
STATE OF MONTANA — DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU — RECLAMATION DIVISION

SITE MAP

SITE MEES  
ROSEBUD COUNTY, MT; TOWNSHIP T4N, RANGE R43E  
 SECTION(S) 24 NW4, NW4  
 MAP SCALE: 1" = 2000' U.S.G.S. QUAD SHEET CRAIN PLACE





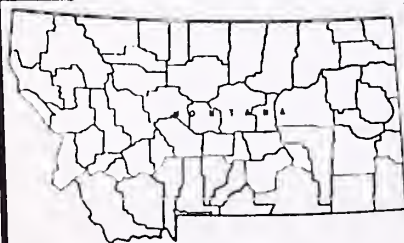
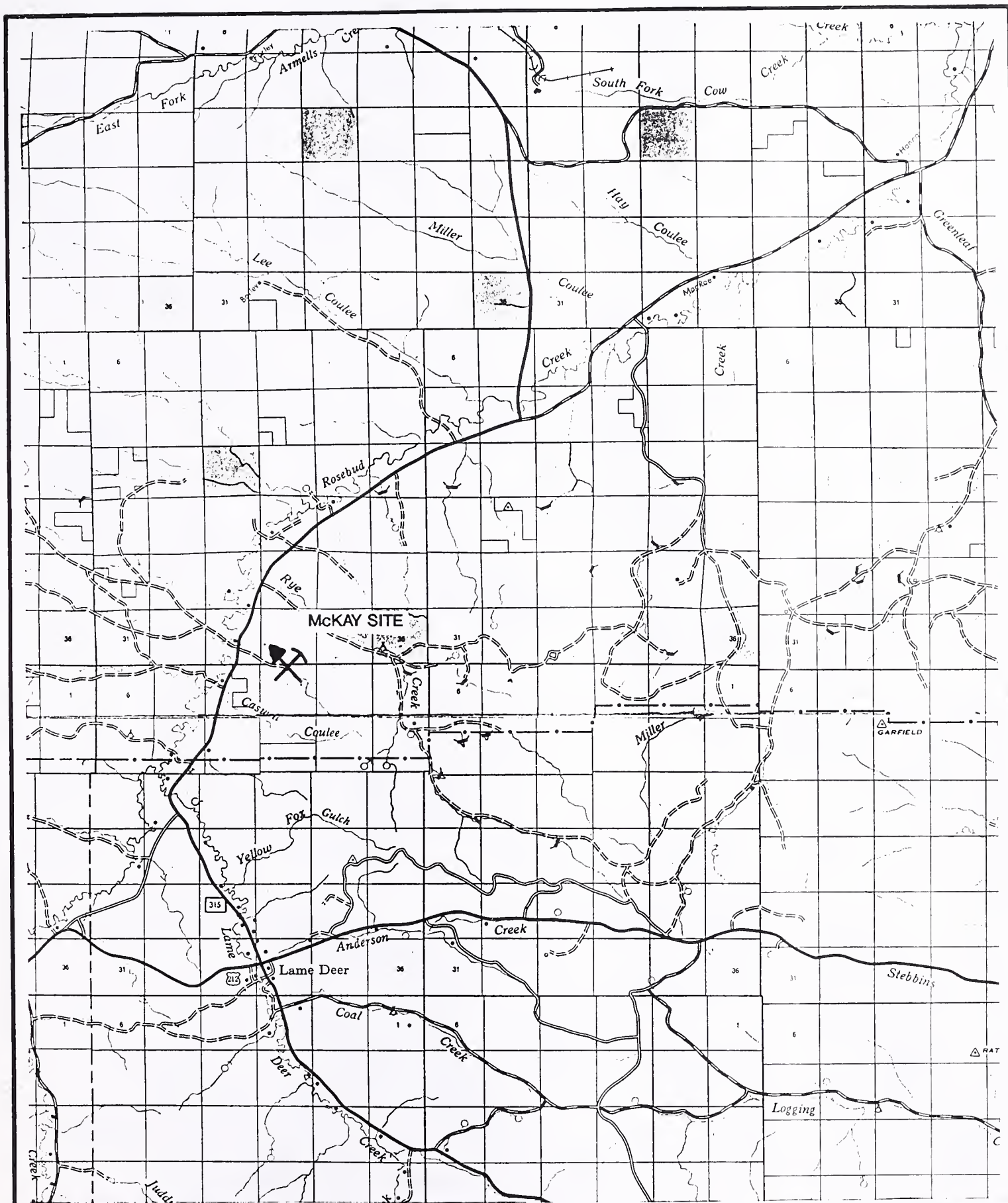


STATE OF MONTANA — DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU — RECLAMATION DIVISION

SITE MAP

SITE JOPPA  
ROSEBUD COUNTY, MT; TOWNSHIP T6N. RANGE R43E.  
 SECTION(S) 24 NW4.NE4  
 MAP SCALE: 1" = 2000' U.S.G.S. QUAD SHEET THURLOW.





STATE OF MONTANA — DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU—RECLAMATION DIVISION

VICINITY MAP

SITE McKay

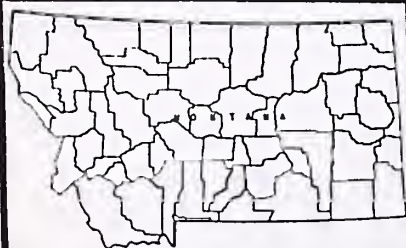
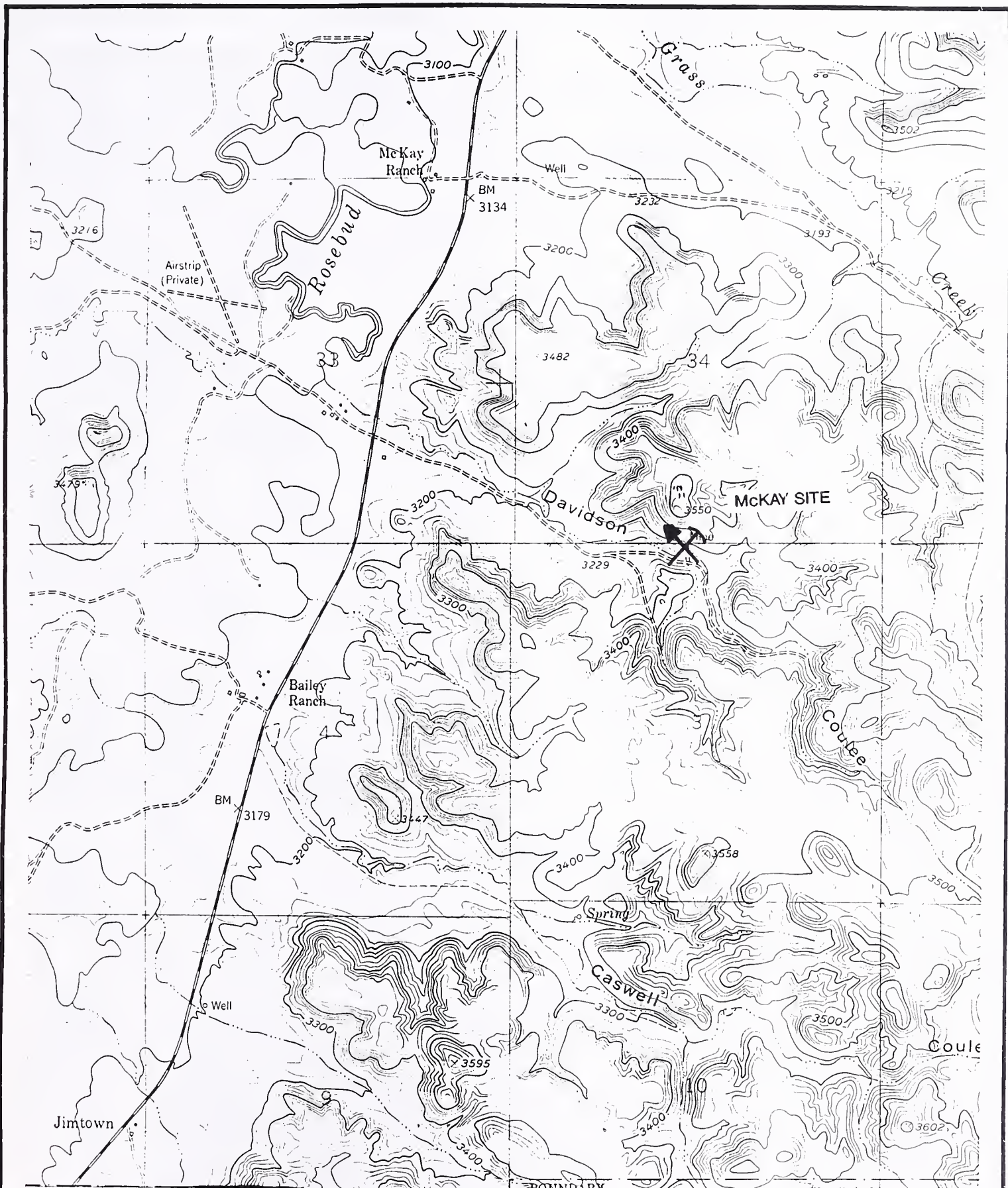
ROSEBUD COUNTY, MT; TOWNSHIP T2S, RANGE R41E

SECTION(S) 3 NE4, NW4, 34 SE4, SW4, T1S, R41E

MAP SCALE: 1" = 2.5 MILES







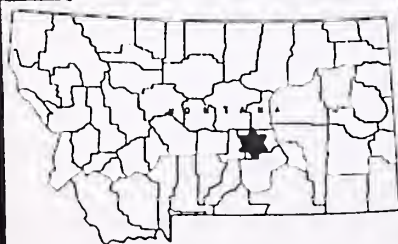
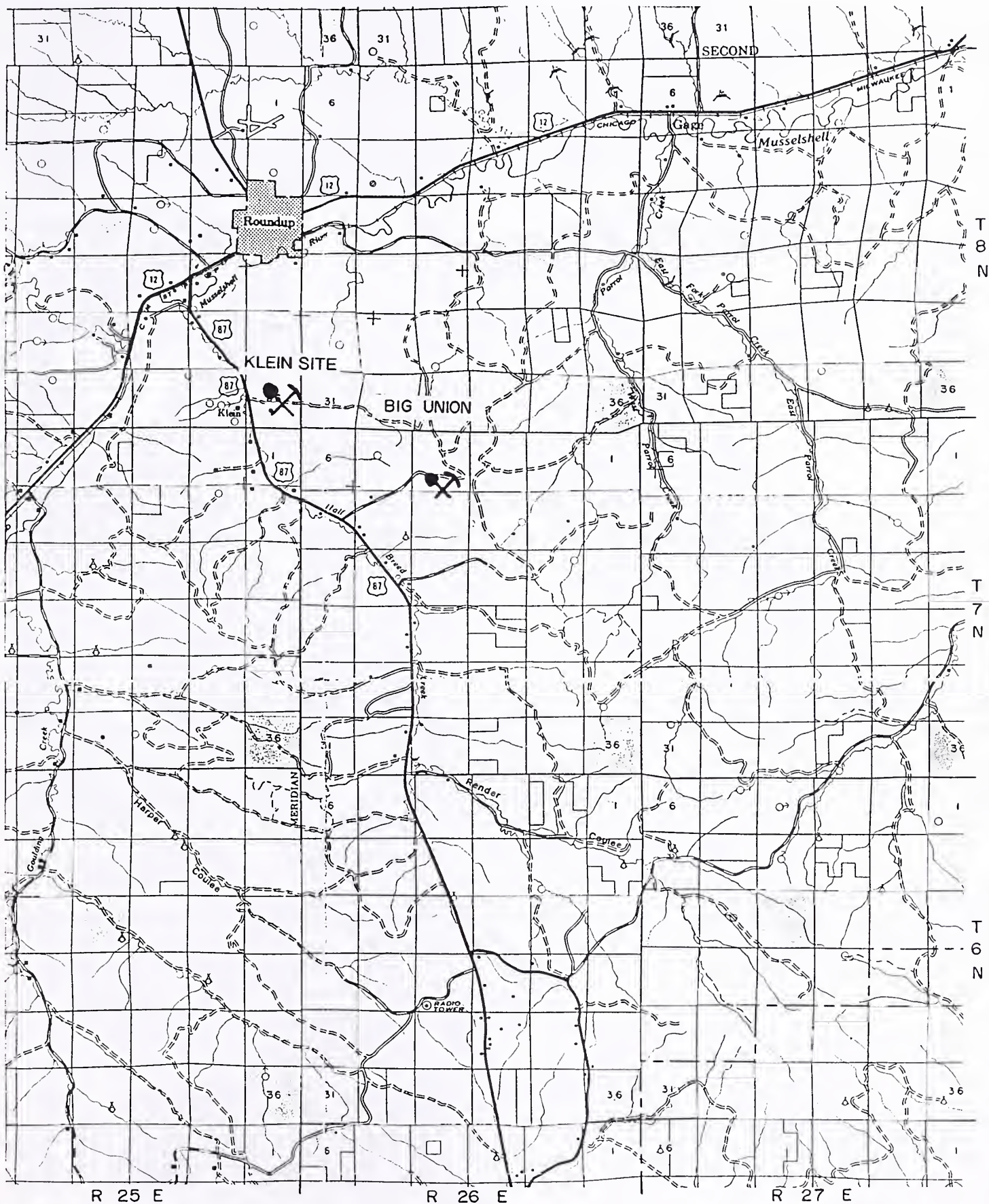
STATE OF MONTANA — DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU — RECLAMATION DIVISION

SITE MAP

SITE McKay  
ROSEBUD COUNTY, MT; TOWNSHIP T2S, RANGE R41E.  
 SECTION(S) 3 NE4, NW4. 34 SE4, SW4. T1S, R41E  
 MAP SCALE: 1" = 2000' U.S.G.S. QUAD SHEET JIM TOWN







STATE OF MONTANA — DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU—RECLAMATION DIVISION

VICINITY MAP

SITE KLEIN, BIG UNION

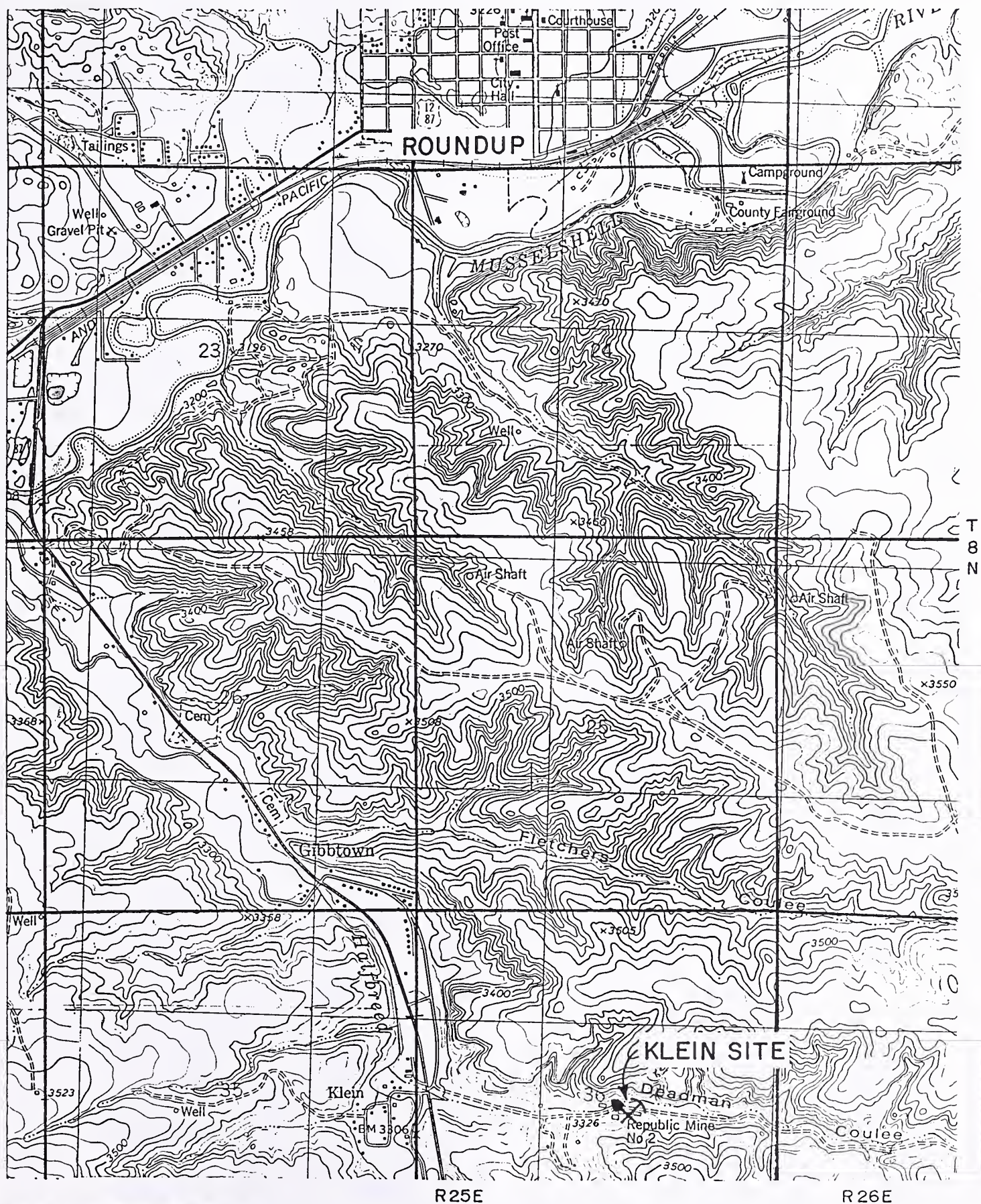
MUSSELSHELL COUNTY, MT; TOWNSHIP 7N-8N RANGE 26 E

SECTION(S) 4 S2S2, 9 N2N2 36 NESE

MAP SCALE: 1" = 2.5 MILES







STATE OF MONTANA — DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU—RECLAMATION DIVISION

### SITE MAP

SITE KLEIN — STATEWIDE MAINTENANCE

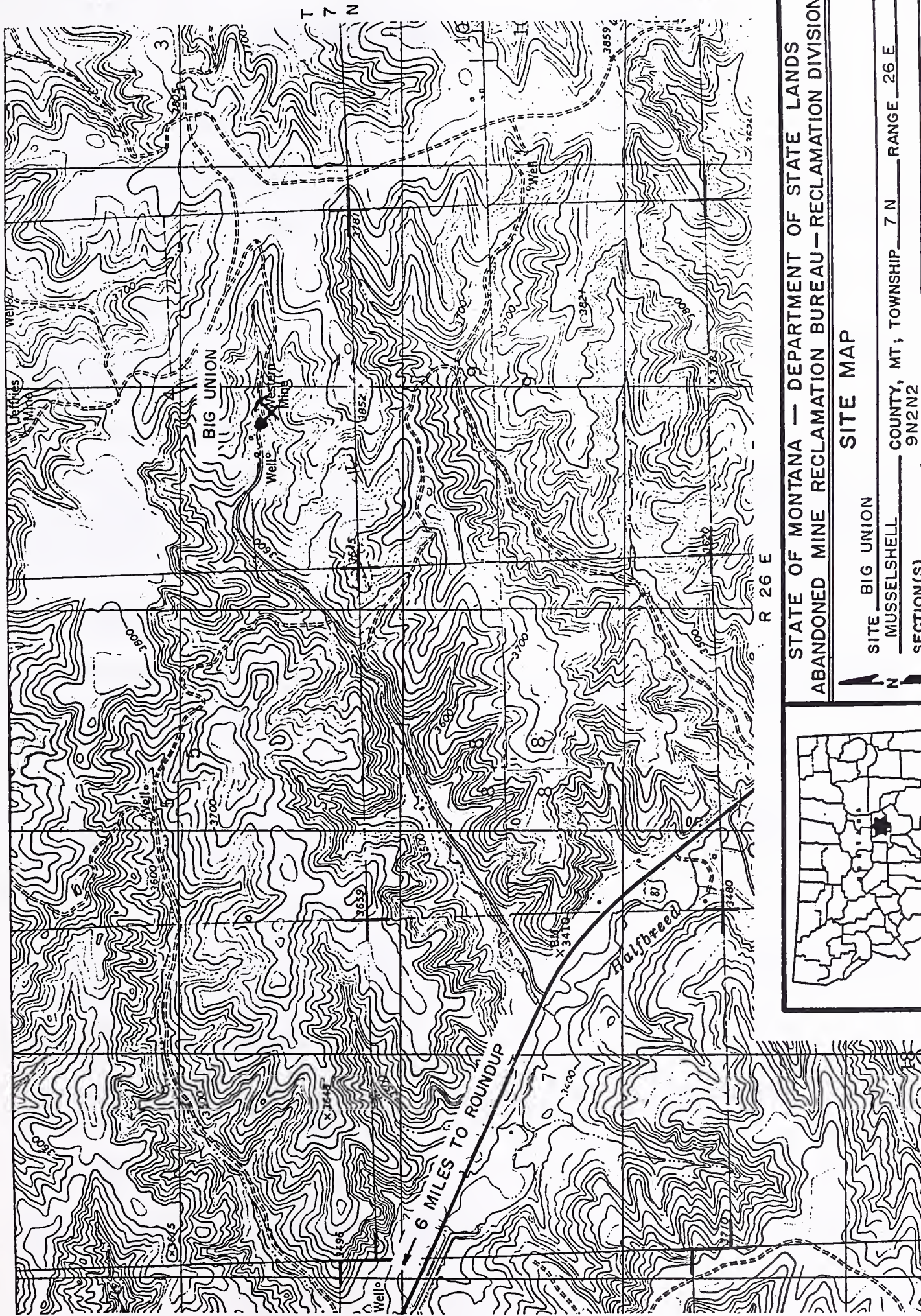
MUSSELSHELL COUNTY, MT; TOWNSHIP 8N RANGE 25E

SECTION(S) 36

MAP SCALE: 1" = 2000' U.S.G.S. QUAD SHEET ROUNDUP







STATE OF MONTANA — DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU — RECLAMATION DIVISION

SITE MAP

SITE BIG UNION

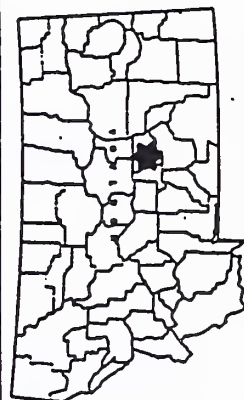
MUSSELSHELL

COUNTY, MT; TOWNSHIP 7 N RANGE 26 E

SECTION(S)

9N2N2

MAP SCALE: 1" = 2000' U.S.G.S. QUAD SHEET GAGE







## **SOUTHEAST PROJECT FINAL REPORT**

### **1.1.2 Land Ownership**

#### **Wilson (Treasure County)**

The landowner is Lee Wilson, P.O. Box 895, Hysham, Montana 59083 at telephone (406) 342-5303.

#### **No. 2 (Custer County)**

The landowner is Glacier Park Co., Attn: Jim Bishop, 519 Main Street, P.O. Box 579, Miles City, Montana 59301 at telephone (406) 232-1274.

#### **FTY Ranch (Powder River County)**

The landowner is Lawrence Yonkee, Box 6288, Sheridan, Wyoming 82801 at office telephone (307) 674-7451 or home telephone (307) 672-5084. Ranch Manager is Lynn McIntyre at telephone (406) 784-2728. Telephone at the ranch house is (406) 784-2721.

#### **Bryan (Powder River County)**

This site is part of the Custer National Forest. Contact is John MacIvor, District Ranger, Ashland Ranger District, Custer National Forest, P.O. Box 168, Ashland, Montana 59003 at telephone (406) 784-2344.

#### **Coal Creek (Powder River County)**

The landowner is Glacier Park Company, Attn: Jim Bishop, P.O. Box 579, Miles City, Montana 59301 at telephone (406) 232-1274.

#### **Gustavsen (Powder River County)**

The landowner is Trusler, Inc., W.W. Bill Trusler, P.O. Box 306, Ashland, Montana 59003 at telephone (406) 784-2337.

#### **Trusler (Rosebud County)**

The landowner is Trusler, Inc., W.W. Bill Trusler, P.O. Box 306, Ashland, Montana 59003 at telephone (406) 784-2337.

#### **Joppa (Rosebud County)**

The landowner is Hunt Oil Company, Fountain Place, 1445 Ross at Field, Dallas, Texas 75202-2785.



## **SOUTHEAST PROJECT FINAL REPORT**

### **Mees (Rosebud County)**

The landowner is the Lavon Mees Trust, c/o Mark Mees, Mees Hereford Ranch, Rosebud, Montana 59347 at telephone (406) 347-5413.

### **McKay (Rosebud County)**

The landowner is Peabody Development Company, Attn: Vic Garber, P.O. Box 706, Douglas, Wyoming 82633 at telephone (307) 358-6803.

### **Klein (Musselshell County Maintenance)**

The Klein site is owned by Mr. Merrill Armstrong, 15 Mineral Drive, Roundup, Montana 59072 at telephone (406) 323-1464.

### **Big Union (Musselshell County Maintenance)**

This site is owned by Alice Brower, et al., 803 1st West, Roundup, Montana 59072; Sallee Murphree, 420 Sioux Lane, Billings, Montana 59105; and Nancy Glenn, #8 Fern Lane, Lewistown, Montana 59457.

### **1.1.3 History**

There was no detailed historical search done for each of the sites within the Southeast Project. The AMRB performed a aerial fly-over and a literature search revealed there were no significant mines in the areas where the reclamation was done. Spectrum Engineering did not pursue obtaining any history on these small coal mines.

#### **Klein Revegetation**

The Klein mine is an abandoned underground coal mine located in the Bull Mountain Coal Field near Roundup, Montana. The mine opened in 1909 and was in operation until 1956. A town, named Klein, was established in 1909 a short distance from the mine. Twenty structures and 31 features remained at the mine in 1981 when a historical survey was performed for the Department of State Lands by Historical Research Associates. A map showing the location of the historical features is within the survey report. A total of 573,000 tons were produced from this mine over its life span.

#### **Big Union/Western Mine**

The land on which the site is located was first patented to Luka Gantar on June 28, 1918 under a homestead entry (#638889). Gantar owned and operated the mine





## **SOUTHEAST PROJECT FINAL REPORT**

until the mid-1940's and it was frequently called the Gantar Mine. The operation was one of the longest-running mines in the Bull Mountains and was one of the last to close during the early 1970's. The operation was drift mining using a room and pillar method. A short wall cutting machine was used to undercut the coal seams. Power for the mine came from a gasoline engine-driven generator on the mine site. The mine generally operated on a seasonal basis with daily production averaging about 4000 tons. There was no railroad connection to the mine although the high-quality sub-bituminous coal found a steady market as a local domestic fuel (Cebul 1958; Clawson 1970; Travis and Turnbull 1950; Turner 1932).

In 1944 Gantar sold out to Harley Kinger, George Badovinus and Henry Gerring who ran the mine until the early 1950's when Glen Johnson took it over. Johnson then ran it until it closed in the 1970's (although it is reported that the mine continued to operate on the sly for some years after it officially closed)(Cross 1984).

After the mine closed it had a brief revival as a mushroom farm. Glen Johnson had experimented with growing mushrooms in his mine during the 1950's but was unable to find a steady market. In the spring of 1972 Johnson tried again and successfully grew the delicate fungus in the Western mine workings where the temperature and humidity were ideal for mushroom cultivation (Chadwick 1973). Following the period as a mushroom farm, the mine served as a public fallout shelter, indicated by a sign on the front portal. Its safety as a fallout shelter, however, was somewhat questionable since a second sign a few meters inside the entrance portal states: "Fan not working. Black Damp (CO<sub>2</sub>) present. Death could be instantaneous."

### **1.2 Project Objectives**

#### **Wilson**

The goal of the work is to reclaim a subsidence hole and bury a small coal slack pile. Topsoil is to be stripped and stockpiled (4 inches) from the borrow area, areas over mine voids, and the subsidence pit. Excavate the underground mine voids. Use stockpile and borrow material to backfill the mine voids, excavations and subsidence. Place topsoil from the stockpiles over the subsidence and borrow areas. Regrade the coal slack in place blending the contours in with surrounding topography. Neutralize the coal slack area. Place topsoil from the borrow area and stockpile over the coal slack area. Revegetate all disturbed areas. Fence the perimeter of the disturbance.

#### **No. 2**

The goals of the work at this site are to close 5 mine openings (adits) and clean up the debris. The Contractor may close the adits by backfilling or by collapsing the roofs. Blasting may be employed.





## **SOUTHEAST PROJECT FINAL REPORT**

### **FTY Ranch**

Mining at this site was done using underground methods with very little cover. Consequently, there are several subsidence holes which have opened. The goal of the work at this site will be to excavate and backfill the mine workings at 4 subsidence. Remove and dispose of all debris. Strip and stockpile 4 inches of topsoil from the borrow area, areas over mine voids, and the subsidence pits. Place topsoil from the stockpiles over the subsidence and borrow areas. Revegetate all disturbed areas. Install F-4M farm fence, single and double panels, and gate, as directed.

### **Bryan**

The objective of the work is to close an open adit, rebuild the area around the adit, neutralize a coal slack area, and revegetate the disturbed areas. At this area remove timbers and structures from the adit. Currently there is a coal car occupying the adit, the Contractor is to remove this car taking care not to damage it. The Owner's Representative will make arrangements to turn it over to the landowner. Remove and dispose of all debris. Close the adit using an earth or rock plug. Strip and stockpile topsoil from the borrow area. Backfill Adit 1 with excess coal slack and borrow material to reclamation contours. Regrade the coal slack area smooth and neutralize. Place 6 inches of topsoil material for the borrow area over the coal slack, adit, and over the borrow area. Revegetate all disturbed areas.

### **Coal Creek**

The goal of the work is to repair some small subsidence that have recently opened and to remove some debris. At the Coal Creek site remove rail from the collapsed adit. Dispose of all debris. Strip and stockpile 4 inches of topsoil from the borrow area, areas over mine voids and the subsidence pits. Excavate the underground mine voids and backfill using stockpiled and borrow material. Place topsoil from the stockpiles over the subsidence and borrow areas. Revegetate all disturbed areas.

### **Gustavsen**

The goal of reclamation is to close an open adit located just west of the abandoned Gustavsen farmhouse. The Contractor may close the adit using backfill or by collapsing the roof over the opening. Blasting may be employed.

### **Trusler**

The goal of reclamation is to close an open adit located on a hillside. The Contractor may close the adit using backfill or by collapsing the roof over the opening. Due to the proximity of Ashland, blasting may not be employed.

### **Joppa**



## **SOUTHEAST PROJECT FINAL REPORT**

The goal of reclamation is to close an open adit located just north of I-94. The Contractor may close the adit using backfill or by collapsing the roof over the opening. Blasting may be employed.

### **Mees**

The goals of reclamation are to collapse the roof over existing mine voids, dispose of coal waste, rebuild a small earthen dam, dispose of debris, regrade a small cabin site, and revegetate disturbed areas. At the mine site strip and stockpile 4 inches of topsoil from the borrow area, areas over mine voids and the area of the dam. Collapse the roof over the underground mine voids, as shown. Backfill the subsidence created by the collapsed mine voids. Use coal slack until depleted and finish with material from the borrow area. Neutralize coal slack areas. Rebuild the small dam to the contours shown on the plan. The embankment shall be built in 6" (loose thickness) lifts to 95% of maximum density. Place topsoil from the stockpiles over the subsidence and borrow areas. At the cabin site remove and dispose of cabin remains and debris. Regrade the area blending the contours in with surrounding topography. Revegetate all disturbed areas. Fence the perimeter of the disturbance.

### **McKay**

The goal of the work at the McKay Mine is to close 2 open adits, remove and dispose of debris, neutralize and bury coal waste areas, and revegetate disturbed areas. At this site remove mine timbers from Adit 1. Remove the door, door frame, and timbers from within Adit 2. All pieces of hardware from the door and all artifacts found inside the door will be given to the Owner's Representative for handling. Close Adits 1 and 2 by backfilling or by drilling and blasting. Neutralize coal slack areas. Place 6 inches of topsoil over the neutralized coal slack area. Place topsoil from the stockpile over the borrow area. Revegetate all disturbed areas.

### **Klein Maintenance**

The objective at the Klein site was to address problems which had developed after the completion of a previous AMR project. Headcutting had developed in the reclaimed check ditches for erosion control from a heavy flash rain that came through the area.

### **Big Union Maintenance**

The objective at the Big Union site was to place erosion control blanket on the steep side slope of the coal slack pile that the high wind had blown off. Apply blanket with 9" staples and branches to help hold it down in place.





# **SOUTHEAST PROJECT FINAL REPORT**

## **2. RESPONSIBLE PARTIES**

### **2.1 Contractor**

The successful low bidder was Baxter Construction. His address is shown below:

Baxter Construction  
4014 Hardin Road  
Billings, Montana 59101  
Phone: 406/259-6404  
MT Contractor's License: 4884 A

### **2.2 Reclamation and Engineering Plan**

Spectrum Engineering was assigned the responsibility of preparing the reclamation and engineering specifications prior to contractor selection. Plans conforming to the general requirements were formulated in the field to meet specific conditions.

Spectrum's address is shown below:

Spectrum Engineering  
3302 4th Avenue North  
Billings, Montana 59101  
Phone: 406/259-2412

### **2.3 Quality Control Inspection**

Spectrum Engineering performed the quality control inspection. The project engineer was Gary Rome and the construction inspector was Hank Lowe.

### **2.4 AMRB Coordination**

The AMRB Project Manager was Dan Koszuta, Montana Department of State Lands, Abandoned Mine Reclamation Bureau.

## **3. CHRONOLOGICAL LISTING OF EVENTS**

### **3.1 Pre-Bid Conference**

The first pre-bid conference was held on September 25, 1990.

### **3.2 Bid Date**

The bid date was October 4, 1990.





## **SOUTHEAST PROJECT FINAL REPORT**

### **3.3 Three Lowest Bids**

There were 5 bidders on this project with bids ranging from a low of \$ 27,494.50 to a high of \$ 60,184.35. The Engineer's Estimate was \$ 51,013.50. The three lowest bidders are listed below. A copy of the bid tabulations is included in the back under Attachment 1.

Baxter Construction	Donnes Construction	Jarrett Construction
Billings, Montana	Billings, Montana	Miles City Montana
\$ 27,494.50	\$ 44,565.00	\$ 57,852.00

### **3.4 Contract Award**

The contract was awarded to the low bidder after receiving all of his bonds and other required paper-work. Baxter Construction was the low bidder. Baxter Construction performed all the work.

### **3.5 Notice of Award**

The Notice of Award was dated October 9, 1990 by the Department of State Lands and the Contractor acknowledged receipt of the Notice of Award on October 27, 1990.

### **3.6 Notice to Proceed**

The Notice to Proceed was DSL dated November 5, 1990 and the Contractor acknowledged receipt of the Notice to Proceed on November 19, 1990.

### **3.7 Construction Start-up**

The Contractor started mobilizing his equipment to the project sites on November 19, 1990.

### **3.8 Change Orders**

There was one change order written for this project. A copy of this change order is included in this report under Attachment 2. The change order was for the maintenance work on the Klein and Big Union sites. The change order added a total of \$ 7,823.50 to the contract price.

### **3.9 Work Stoppages**

There were no work shut-downs on this project.



## **SOUTHEAST PROJECT FINAL REPORT**

### **3.10 Requests for Payment**

There was one payment request on this project for the period from November 5, 1990 through December 14, 1990. The pay request for job completion was \$ 34,964.82. A copy of this payment request is found at the back in Attachment 3.

### **3.11 Substantial Completion**

The date of Substantial Completion was December 14, 1990.

### **3.12 Final Completion and Approval**

The Final Completion date is one year from the Substantial Completion date or December 14, 1991.

### **3.13 Final Payment**

Final payment was made to the Contractor on January 3, 1991.

## **4. CONSTRUCTION**

### **4.1 Description of Project Plan**

The goal of this project was to dispose of and neutralize coal slack, backfill subsidence, excavate and close mine openings, debris clean-up, revegetation of all disturbed areas, and fence installation.

### **4.2 Major Equipment List**

<u>Type</u>	<u>Year</u>	<u>Make/Model</u>	<u>Size/Horsepower</u>	<u>No. on Job</u>
Crimper	1990	Homemade		1
Pick-up	1977	Chevy	3/4 ton	1
Pick-up	1980	Ford	3/4 ton	1
Dump truck	1964	Ford	6 yard	1
Flat bed trailer	1960	Ford	1 ton	1
Tilt trailer	1973	Miller	13 ton	1
Track loader	1978	John Deere	2 1/4 yd - 152 hp	1
Loader	1965	Bobcat	1/2 yd - 30 hp	1
Backhoe-loader		Case 580	3/4 yd - 40 hp	1
Post hole auger		Lowe		1
Water pump		Briggs/Stratton	3" - 5 hp	1





## **SOUTHEAST PROJECT FINAL REPORT**

### **4.3 Contractor Employees**

The number of contractor employees on the job was 4 counting the Contractor himself.

### **4.4 Construction Activities**

A chronological summary of construction activities follows. The Southeast Project started with mobilization to the Bryan site on November 19, 1990. The only change on this site was adding fence. While working at the Bryan site, Gustavsen, Coal Creek, and FTY Ranch sites were worked in with it.

Mobilization from the Bryan site to the Trusler site was on November 29, 1990. The adit was backfilled by hand. Next was the McKay site where the adits were backfilled and coal slack areas were neutralized and revegetated. From McKay the Contractor moved to the Wilson site. He excavated the mine workings, revegetated and fenced disturbed areas. Contractor mobilized to Mees site from Wilson on December 5, 1990. At the Mees site the Contractor backfilled mine voids, constructed earth dam, neutralized coal slack, revegetated, and fenced disturbed areas. Upon Mees completion, mobilized to Joppa site on December 10, 1990 and arrived at dark. The next morning the adit was backfilled by hand. Then mobilized to the No. 2 site where the track loader was used to backfill 5 adits.

The Klein and Big Union sites were added to the Southeast Project. At the Klein site erosion of the channels was repaired and revegetation completed. At the Big Union site, erosion control blanket was replaced with branches laid on top to keep high winds from blowing the blanket around. Mobilized out on December 14, 1990 with all sites complete on the Southeast Project.





## SOUTHEAST PROJECT FINAL REPORT

### 4.5 Quantities Used

#### ITEMIZATION OF QUANTITIES AND COSTS

<u>Item</u>	<u>Amount</u>	<u>Unit</u>	<u>Unit Cost</u>
Mobilization	1.	Lump Sum	\$ 2,750.00 / unit
Subsidence Backfill	1.	Lump Sum	\$ 1,567.50 / unit
Debris Removal	1.	Lump Sum	\$ 800.00 / unit
Salvage and Replace Topsoil	1.	Lump Sum	\$ 1,935.00 / unit
Direct Place Topsoil	1.	Lump Sum	\$ 840.00 / unit
Close Mine Openings	14.	each	\$ 500.00 / each
Excavation of Mine Workings	6.	each	\$ 600.00 / each
Provide Water	3.	Kgal	\$ 10.00 / Kgal
Regrade Coal Slack & Waste	1.	Lump Sum	\$ 110.00 / unit
Lime Placement	0.76	Acres	\$ 600.00 / acre
Fertilize, Seed, & Hay Mulch	1.81	Acres	1,500.00 / acre
Farm Fence (Type F-4M)	2,927.	L feet	\$ 1.00 / foot
Farm Fence Double Panels	26.	Each	\$ 90.00 / each
Farm Fence Single Panels	8.	Each	\$ 60.00 / each
Farm Fence Gates Type F-4	96.	L feet	\$ 5.00 / L ft

#### Change order items for Klein Maintenance:

Mobilization	1.	Lump Sum	\$ 500.00 / unit
Provide Water	1.5	Kgal	\$ 10.00 / Kgal
Erosion Control Blanket	320.	Sq. yard	\$ 2.50 / Sqyd
Site Work-Labor	11.	Hours	\$ 22.00 / hour
JD 755 Track Loader Time	2.5	Hours	\$ 75.00 / hour

#### Change order items for Big Union Maintenance:

Mobilization	1.	Lump Sum	\$ 300.00 / unit
Provide Water	4.5	Kgal	\$ 10.00 / Kgal
Erosion Control Blanket	2000.	Sq. yards	\$ 2.50 / Sqyd
Site Work-Labor	9.	Hours	\$ 22.00 / hour



## SOUTHEAST PROJECT FINAL REPORT

### 5. PAYMENT REQUESTS

#### 5.1 Pay Request

One payment request was processed for this project. A copy of the payment request has been included in Attachment 3.

#### 5.2 Cost per Site

<u>Site Name</u>	<u>Disturbed Acres</u>	<u>Cost/Acre</u>	<u>Total Project Cost</u>
Wilson	0.15	\$ 22,263.13	\$ 3,339.47
No. 2	0.00		\$ 2,900.00
FTY Ranch	0.13	\$ 36,426.69	\$ 4,735.47
Bryan	0.61	\$ 8,998.52	\$ 5,489.10
Coal Creek	0.09	\$ 13,166.67	\$ 1,185.00
Gustavsen	0.00		\$ 600.00
Trusler	0.00		\$ 550.00
Joppa	0.00		\$ 550.00
Mees	0.47	11,451.02	5,381.98
McKay	0.36	9,165.23	3,299.48
Subtotal/Avg (Bid)	1.81	\$ 15,486.46	\$ 28,030.50
Klein		1,744.50	
Big Union		5,543.00	
Subtotal/Avg (Added)		\$ 7,287.50	
Total/Avg (All)	1.81	\$ 19,512.71	\$ 35,318.00





## SOUTHEAST PROJECT FINAL REPORT

### Quantities Used per Site

#### Wilson (0.15 acres)

	Quantity		Cost Per Unit	Cost Per Acre	Total Cost
Mobilization	1. LS		\$ 399.47	\$ 2,663.13	\$ 399.47
Subsidence Backfill	80. LCY		1.50	800.00	120.00
Salvage/Replace Topsoil	100. LCY		3.00	2,000.00	300.00
Direct Place Topsoil	90. LCY		1.50	900.00	135.00
Close Mine Openings	1. each		600.00	4,000.00	600.00
Regrade Coal Slack & Waste	60. LCY		1.00	400.00	60.00
Lime Placement	0.02 AC		600.00	80.00	12.00
Fertilize,Seed & Mulch	0.15 AC		1,500.00	1,500.00	225.00
Fence Type F-4M	488. LF		1.00	3,253.33	488.00
Fence-Single Panel	2. each		60.00	800.00	120.00
Fence-Double Panel	8. each		90.00	4,800.00	720.00
Fence-Gates Type F-4	32. LF		5.00	<u>1,066.66</u>	<u>160.00</u>

**Wilson Total:** \$ 22,263.13    \$ 3,339.47

#### No. 2 (0.00 acres)

Mobilization	1. LS	\$ 300.00		\$ 300.00
Debris Removal	1. LS	100.00		100.00
Close Mine Openings	5. each	500.00		<u>2,500.00</u>

**No. 2 Total:** \$ 2,900.00

#### FTY Ranch (0.13 acres)

Mobilization	1. LS	\$ 399.47	\$ 3,072.85	399.47
Subsidence Backfill	150. LCY	1.50	1,730.77	225.00
Debris Removal	1. LS	100.00	769.23	100.00
Salvage/Replace Topsoil	130. LCY	3.00	3,000.00	390.00
Excavation Mine Workings	4. each	600.00	18,461.54	2,400.00
Fertilize,Seed & Mulch	0.13 AC	1,500.00	1,500.00	195.00
Fence Type F-4M	526. LF	1.00	4,046.15	526.00
Fence-Single Panel	1. each	60.00	461.54	60.00
Fence-Double Panel	4. each	90.00	2,769.23	360.00
Fence-Gates Type F-4	16. LF	5.00	<u>615.38</u>	<u>80.00</u>

**FTY Ranch Total:** \$ 36,426.69    \$ 4,735.47





## SOUTHEAST PROJECT FINAL REPORT

### Bryan (0.61 acres)

	Quantity		Cost Per Unit	Cost Per Acre	Total Cost
Mobilization	1. LS		\$ 452.10	\$ 741.15	\$ 452.10
Subsidence Backfill	470. LCY		1.50	1,155.74	705.00
Debris Removal	1. LS		200.00	327.87	200.00
Salvage/Rep. Topsoil	210. LCY		3.00	1,032.79	630.00
Direct Place Topsoil	170. LCY		1.50	418.03	255.00
Close Mine Openings	1. each		500.00	819.67	500.00
Provide Water	0.3 KGAL		10.00	4.92	3.00
Lime Placement	0.25 AC		600.00	245.90	150.00
Fertilize, Seed & Mulch	0.61 AC		1,500.00	1,500.00	915.00
Fence Type F-4M	969. LF		1.00	1,588.52	969.00
Fence-Single Panel	3. each		60.00	295.08	180.00
Fence-Double Panel	5. each		90.00	737.70	450.00
Fence-Gates Type F-4	16. LF		5.00	<u>131.15</u>	<u>80.00</u>

**Bryan Total:** \$ 8,998.52    \$ 5,489.10

### Coal Creek (0.09 acres)

Mobilization	1. LS		\$ 200.00	\$ 2,222.22	\$ 200.00
Subsidence Backfill	20. LCY		1.50	333.33	30.00
Debris Removal	1. LS		100.00	1,111.11	100.00
Salvage/Rep. Topsoil	40. LCY		3.00	1,333.33	120.00
Exc. Mine Workings	1. each		600.00	6,666.67	600.00
Fertilize, Seed & Mulch	0.09 AC		1,500.00	<u>1,500.00</u>	<u>135.00</u>

**Coal Creek Total:** \$ 13,166.67    \$ 1,185.00

### Gustavsen (0.00 acres)

Mobilization	1. LS		\$ 100.00		\$ 100.00
Close Mine Openings	1. each		500.00		<u>500.00</u>

**Gustavsen Total:** \$ 600.00



## SOUTHEAST PROJECT FINAL REPORT

### Trusler (0.00 acres)

	Quantity	Cost Per Unit	Cost Per Acre	Total Cost
Mobilization	1. LS	\$ 50.00		\$ 50.00
Close Mine Openings	1. each	500.00		<u>500.00</u>
<b>Trusler Total:</b>				<b>\$ 550.00</b>

### Joppa (0.00 acres)

Mobilization	1. LS	\$ 50.00		\$ 50.00
Close Mine Openings	1. each	500.00		<u>500.00</u>
<b>Joppa Total:</b>				<b>\$ 550.00</b>

### Mees (0.47 acres)

Mobilization	1. LS	\$ 399.48	\$ 849.96	\$ 399.48
Subsidence Backfill	325. LCY	1.50	1,037.23	487.50
Debris Removal	1. LS	100.00	212.77	100.00
Salvage/Rep. Topsoil	95. LCY	3.00	606.38	285.00
Direct Place Topsoil	100. LCY	1.50	319.15	150.00
Close Mine Openings	2. each	500.00	2,127.66	1,000.00
Provide Water	0.27 KGAL	10.00	57.45	27.00
Regrade Coal Slack & Waste	50. LCY	1.00	106.38	50.00
Lime Placement	0.24 acre	600.00	306.38	144.00
Fertilize,Seed & Mulch	0.47 acre	1,500.00	1,500.00	705.00
Fence Type F-4M	944. LF	1.00	2,008.51	944.00
Fence-Single Panel	2. each	60.00	255.32	120.00
Fence-Double Panel	9. each	90.00	1,723.40	810.00
Fence-Gates Type F-4	32. LF	5.00	<u>340.43</u>	<u>160.00</u>
<b>Mees Total:</b>			<b>\$ 11,451.02</b>	<b>\$ 5,381.98</b>





## SOUTHEAST PROJECT FINAL REPORT

### McKay (0.36 acres)

	Quantity		Cost Per Unit	Cost Per Acre	Total Cost
Mobilization	1. LS		\$ 399.48	\$1,109.67	\$ 399.48
Debris Removal	1. LS		200.00	555.56	200.00
Salvage/Replace Topsoil	70. LCY		3.00	583.33	210.00
Direct Place Topsoil	200. LCY		1.50	833.33	300.00
Close Mine Openings	3. each		500.00	4,166.67	1,500.00
Lime Placement	0.25 acre		600.00	416.67	150.00
Fertilize, Seed & Mulch	0.36 acre		1,500.00	<u>1,500.00</u>	<u>540.00</u>

**McKay Total:** \$ 9,165.23    \$ 3,299.48

### Klein Maintenance

Mobilization	1. LS		\$ 500.00		\$ 500.00
Provide Water	1.5 KGAL		10.00		15.00
Erosion Control Blanket	320. SY		2.50		800.00
Site Work-Labor	11. hour		22.00		242.00
JD 755 Track Loader Time	2.5 hour		75.00		<u>187.50</u>

**Klein Total:** \$ 1,744.50

### Big Union Maintenance

Mobilization	1. LS		\$ 500.00		\$ 300.00
Provide Water	4.5 KGAL		10.00		45.00
Erosion Control Blanket	2000. SY		2.50		5,000.00
Site Work-Labor	9. hour		22.00		<u>198.00</u>

**Big Union Total:** \$ 5,543.00

**Subtotal all Maintenance:** \$ 7,287.50

### 5.3 Total Project Cost

The original bid was \$ 27,494.50 and one change order was issued for \$7,823.50 bringing the total construction cost to \$35,318.00. The design engineering cost for the project was \$ 35,956.28. An analysis of the engineering costs versus construction costs is presented in Attachment 4.



# **SOUTHEAST PROJECT FINAL REPORT**

## **6. PROJECT SUMMARY**

### **6.1 Summary of Project**

Reclamation of the Southeast Project was performed in accordance with the bid package. Two maintenance sites were added to the project. They were the Klein and the Big Union sites. The project was started with mobilization to the Bryan site, on November 19, 1990. Baxter Construction completed each site before moving to the next site. Weather was cool with about two days of snow. This did not cause any work stoppages. The project finished with No. 2 site on December 11, 1990. At that time all equipment was mobilized to home base except for the John Deere 755 track loader. It was taken to the Klein site and work began December 13, 1990. Repair was done on the check ditches and then erosion control blanket was placed on the downhill side of the ditch. The face of the creek ditch was revegetated with hay mulch. From the Klein site, the equipment was mobilized to the Big Union site on December 14, 1990. At this site, erosion control blanket was placed on the coal slack pile (it had previously blown off in a high wind storm). Nine inch staples were used rather than the six inch staples used previously. After it was in place, water was applied and small trees and branches were placed on top to help hold the blanket down.

### **6.2 Site Condition after Completion**

These sites look very good and with some moisture the revegetation should progress very well.

### **6.3 Maintenance or Follow-up**

Revegetation should be checked next spring to assess success at all of the sites. The 11-month warranty check should also be made in October or November of 1991.

### **6.4 Bid Package (Construction) Drawings**

The bid package contained eleven Site Plan sheets covering the work and showing the access to the sites. The additional two maintenance sites were not in the original bid package. The Site Plans are located in Attachment 5 at the back of the final report. These plans represent the reclamation engineering design (the plans from which the contractors bid the work).

### **6.5 As-Built Drawings**

A set of the bid package construction drawings referenced under Section 6.4 were taken and modified to reflect the as-built final reclamation construction. These are located in Attachment 6 right before the photographs and directly behind the bid package construction Site Plans located in Attachment 5.





# **SOUTHEAST PROJECT FINAL REPORT**

## **7. COMMENTS/SUGGESTIONS**

The Contractor did an excellent reclamation job on all of the sites. Some artifacts were recovered from the McKay site including a powder can/keg. These were turned over to the AMRB. It was discussed during the course of the project to place a bronze marker along the highway by Jimtown, highlighting the significance of the McKay Mine to the local area. This was not done. This still might be something worth pursuing.

The entire Southeast Project went so well there is really nothing extra pro or con which can be said.

## **8. PHOTOGRAPHS/SLIDES**

### **8.1 Listing**

The description of the slides and photographs taken to document the work performed is found at the back of the final report under Attachment 7. Picture numbers 1 through 9 show the equipment used to execute the work. Numbers 10 through 19 show the Wilson site. Numbers 20 through 36 show the work performed at the No. 2 site. Numbers 37 through 54 show the FTY Ranch site. Picture numbers 55 through 65 show the Bryan site. Numbers 66 through 72 show the Coal Creek site. Numbers 73 through 85 show the Gustavsen site. Numbers 86 through 88 show the Trusler site. Number 89 shows the Joppa site. Numbers 90 through 112 show the Mees site. Numbers 113 through 138 show the McKay site. Numbers 139 through 151 show the Klein maintenance site. Numbers 152 through 157 show the Big Union maintenance site.

Each picture is numbered on the front and has a generic label on the back. Following the photo descriptions are the photo location maps and then the photos or slides themselves. The two bound final reports contain photographs and the unbound report contains the slides.

### **8.2 Photo Location Maps**

The location where the photos were taken and their orientation are shown on the plan sheets located in Attachment 7 at the back of the report.

### **8.3 Photos/Slides**

A sequence of photographs documenting the construction activities begins immediately following the photo location maps found in Attachment 7 at the back of the report.



# **ATTACHMENT 1**

## **BID TABULATIONS**





BID TABULATIONS				ENGINEER'S ESTIMATE		Willie E. Baxter Construction		Jarrett Construction Inc.		Mitchel Bro's. Inc.	
Item Number	Estimated Quantity	Unit	Description	Unit Price	Total Price						
1.	1	LS	Mobilization	15,000.00	15,000.00	2,750.00	2,750.00	12,475.00	12,475.00	14,500.00	14,500.00
2.	1	NP	Provide Access	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.	1	LS	Subsidence Backfill	4,200.00	4,200.00	1,567.50	1,567.50	3,135.00	3,135.00	5,225.00	5,225.00
4.	1	LS	Debris Removal	1,500.00	1,500.00	800.00	800.00	2,400.00	2,400.00	1,000.00	1,000.00
5.	1	LS	Salvage and Replace Topsoil	2,260.00	2,260.00	1,935.00	1,935.00	2,580.00	2,580.00	1,290.00	1,290.00
6.	1	LS	Direct Place Topsoil	1,540.00	1,540.00	840.00	840.00	1,680.00	1,680.00	2,520.00	2,520.00
7.	13	EA	Close Mine Openings	800.00	10,400.00	500.00	500.00	700.00	9,100.00	888.45	11,549.85
8.	6	EA	Excavation of Mine Workings	900.00	5,400.00	600.00	600.00	1,380.00	8,280.00	1293.75	7,762.50
9.	34.5	Kgal	Provide Water	30.00	1,035.00	10.00	10.00	30.00	1,035.00	50.00	1,725.00
10.	1	LS	Regrade Coal Slack & Waste	110.00	110.00	110.00	110.00	500.00	500.00	825.00	825.00
11.	0.72	Acre	Lime Placement (3.6 tons)	1,600.00	1,152.00	600.00	600.00	6,000.00	4,320.00	2,000.00	1,440.00
12.	2.39	Acre	Fertilize, Seed, & Hay Mulch	1,250.00	2,987.50	1,500.00	1,500.00	2,500.00	5,975.00	2,500.00	5,975.00
13.	1,960	LF	Farm Fence Type F-4M	1.15	2,254.00	1.00	1.00	1,960.00	2,352.00	1.20	2,352.00
14.	7	EA	Farm Fence - Single Panel	75.00	525.00	60.00	60.00	420.00	630.00	90.00	630.00
15.	25	EA	Farm Fence - Double Panel	90.00	2,250.00	90.00	90.00	2,250.00	2,750.00	110.00	2,750.00
16.	80	FT	Farm Fence Gates Type F-4	5.00	400.00	5.00	5.00	8.00	640.00	8.00	640.00
					51,013.50		27,494.50		57,852.00		60,184.35



SOUTHEAST MONTANA PROJECT  
TREASURE, CUSTER, POWDER RIVER, AND ROSEBUD COUNTIES, MONTANA

BID TABULATIONS				ENGINEER'S ESTIMATE		Donnes Construction		Hallett Minerals Company dba Hallett Reclamation Co.		
Item Number	Estimated Quantity	Unit	Description	Unit Price	Total Price					
1.	1	LS	Mobilization	15,000.00	15,000.00	18,000.00	4,549.00	4,549.00		0.00
2.	1	NP	Provide Access	0.00	0.00	0.00	0.00	0.00		0.00
3.	1	LS	Subsidence Backfill	4,200.00	4,200.00	1,080.00	8,014.00	2,419.00		0.00
4.	1	LS	Debris Removal	1,600.00	1,500.00	2,100.00	2,419.00	2,419.00		0.00
5.	1	LS	Salvage and Replace Topsoil	2,260.00	2,260.00	1,290.00	5,253.00	5,253.00		0.00
6.	1	LS	Direct Place Topsoil	1,540.00	1,540.00	560.00	3,932.00	3,932.00		0.00
7.	13	EA	Close Mine Openings	900.00	10,400.00	650.00	8,450.00	4,992.00		0.00
8.	6	EA	Excavation of Mine Workings	900.00	5,400.00	600.00	3,600.00	9,072.00		0.00
9.	34.5	Kgal	Provide Water	30.00	1,035.00	10.00	345.00	5,485.50		0.00
10.	1	LS	Regrade Coal Slack & Waste	110.00	110.00	210.00	907.00	907.00		0.00
11.	0.72	Acre	Lime Placement (3.6 tons)	1,600.00	1,152.00	1,000.00	720.00	6,480.00		0.00
12.	2.39	Acre	Fertilize, Seed, & Hay Mulch	1,250.00	2,987.50	1,000.00	2,390.00	6,553.38		0.00
13.	1,960	LF	Farm Fence Type F-4M	1.15	2,254.00	1.00	1,960.00	1,666.00		0.00
14.	7	EA	Farm Fence - Single Panel	75.00	525.00	80.00	560.00	70.00		0.00
15.	25	EA	Farm Fence - Double Panel	90.00	2,250.00	100.00	2,500.00	375.00		0.00
16.	80	FT	Farm Fence Gates Type F-4	5.00	400.00	10.00	800.00	68.00		0.00
					51,013.50		44,565.00	59,835.88		0.00

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## **ATTACHMENT 2**

### **CHANGE ORDERS**



# CHANGE ORDER

Order No. 1

PROJECT TITLE: Southeast Montana Project

CONTRACT DATE: November 5, 1990

OWNER: Montana Department of State Lands, Abandoned Mine Reclamation Bureau

CONTRACTOR: Willie E. Baxter Construction

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show Percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES					TOTAL COST
		MAT'LS.	LABOR	EQUIP.	MISC.	TOTAL UNIT COST	
1.	Mobilization: Klein & Big Union						\$ 800.00
7.	Close Mine Openings: +1 Adit at McKay Mine					\$500.00	500.00
9.	Provide Water: -25.5 KGAL					10.00	( 255.00)
11.	Lime Placement: +0.04 Acres					600.00	24.00
12.	Fertilize, Seed, and Hay Mulch: -0.58 Acres					1,500.00	( 870.00)
13.	Farm Fence Type F-4M: +967 LF					1.00	967.00
14.	Farm Fence Single Panel: +1 EA					60.00	60.00
15.	Farm Fence Double Panel: +1 EA					90.00	90.00
16.	Farm Fence Gates: +16 LF					5.00	80.00
17.	Erosion Control Blanket: +2,320 SY	1.05	0.61	0.11	0.73	2.50	5,800.00
18.	Site Work: +20 HR		19.91		2.09	22.00	440.00
19.	JD 755 Track Loader Time: +2.5 HR					75.00	187.50
TOTAL COST - MAT'LS, LABOR, EQUIPMENT & MISC.						\$ 7,823.50	
OVERHEAD & PROFIT @						N/A	
GRAND TOTAL - THIS CHANGE ORDER						\$ 7,823.50	

Original Contract Price \$27,494.50

Current Contract Price Adjusted by Previous Change Order 27,494.50

Cost this Change Order ( + or - ) 7,823.50

New Contract Price Including this Change Order \$ 35,318.00





The completion date as set forth in the Contract Documents shall be (unchanged, ~~increased~~, ~~decreased~~) by 0 calendar days.

The date for completion of all work will be January 17, 1991.

Description and Justification for Change:

Item 1. Additional Mobilization for Klein and Big Union Maintenance work.

Items 7, 9, 11 - 16. All changes are reconciliation of actual construction quantities versus those estimated for unit price items.

Items 17, 18. Unit costs for erosion control blanket and additional site work at the Klein and Big Union Maintenance sites.

Item 19. Unit cost for machine time taken from Contract documents.

---

SURETY CONSENT

The Surety hereby consents to the aforementioned Contract Change Order and agrees that its bond or bonds shall apply and extend to the contract as thereby modified or amended per this Change Order. The Principal and the Surety further agree that on or after execution of this consent, the penalty of the applicable Performance Bond or Bonds is hereby increased by \$ 7,823.50 (100% of the Change Order amount) and the penalty of the applicable Labor and Material Bond or Bonds is hereby increased by \$ 7,823.50 (100% of the Change Order amount).

COUNTERSIGNED BY MONTANA  
RESIDENT AGENT

FBS Insurance Montana,  
FBS Insurance Billings

Countersigned by:

Dennis P. Gambill  
Montana Resident Agent

SURETY

TRANSAMERICA PREMIER INSURANCE COMPANY

By:

Dennis P. Gambill  
(Seal)

Recommended by: Mary W. Rome  
Engineer: Spectrum Engineering

12/27/90  
Date

Accepted by: Willie E. Baxter  
Contractor: Willie E. Baxter Const.

12-28-90  
Date

Approved by: <sup>SM</sup> Larry M. Moulden  
Owner

1/2/91  
Date



## **ATTACHMENT 3**

### **PAYMENT REQUESTS**





**PAYMENT REQUEST NO. 1**

FROM 11/05/90 TO 12/14/90

PROJECT TITLE: Southeast Montana Project MONT A/E or DSL-AMRB: 90-018

LOCATION: Treasure, Custer, Powder River, and Rosebud Counties, Montana

NAME OF CONTRACTOR: Baxter Construction aka Willie E. Baxter Const.

ADDRESS: 4014 Hardin Road, Billings, MT 59101

**SUMMARY OF PROJECT STATUS**

Amount of Original Contract \$ 27,494.50 DMK  
Change Order No. 1 \$ 7,823.50  
Change Order No.            \$             
Change Order No.            \$             
Amount of Approved Change Order(s) \$ 7,823.50  
**TOTAL CONTRACT AMOUNT** \$ 35,318.00

Pay Request No.	Amount of Request
<u>1</u>	<u>\$ 35,318.00</u>

Total Contract Amount Completed to Date \$ 35,318.00  
Less Retainage (0 %) \$ 0.00  
TOTAL AMOUNT EARNED TO DATE \$ 35,318.00  
Less Previous Payments \$ 0.00  
AMOUNT DUE THIS PAYMENT \$ 35,318.00  
Less 1% Tax \$ 353.18  
**TOTAL DUE CONTRACTOR** \$ 34,964.82

I certify that this claim is correct and just in all respects and that payment or credit has not been received.

APPROVED BY:

WILLIE E. BAXTER CONST.  
Contractor

MONTANA DEPT. OF STATE LANDS, AMRB  
Owner

By Edward Baxter  
Date 12-28-90

By Larry Mantall DMK  
Date 1/2/91

RECOMMENDED BY:

SPECTRUM ENGINEERING  
Engineer  
By: Larry W Rome  
Date: 12/27/90



# ITEMIZATION OF QUANTITIES AND COSTS

Item No.	Description	Contract Quantity	Contract Unit Price	Previous Quantity Requested	Current Quantity Completed	Total Quantity Completed to Date	Total Contract Amount Completed to Date	Amount Due This Payment
1.	Mobilization	1 LS	\$ 2,750.00		1	1.00	\$ 2,750.00	\$ 2,750.00
2.	Provide Access	NP	0.00		1	1.00	0.00	0.00
3.	Subsidence Backfill	1 LS	1,567.50		1	1.00	1,567.50	1,567.50
4.	Debris Removal	1 LS	800.00		1	1.00	800.00	800.00
5.	Salvage and Replace Topsoil	1 LS	1,935.00		1	1.00	1,935.00	1,935.00
6.	Direct Place Topsoil	1 LS	840.00		1	1.00	840.00	840.00
7.	Close Mine Openings	13 EA	500.00		14	14.00	7,000.00	7,000.00
8.	Excavation of Mine Workings	6 EA	600.00		6	6.00	3,600.00	3,600.00
9.	Provide Water	34.5 KGAL	10.00		3.0	3.00	30.00	30.00
10.	Regrade Coal Slack & Waste	1 LS	110.00		1	1.00	110.00	110.00
11.	Lime Placement	0.72 AC	600.00		0.76	0.76	456.00	456.00
12.	Fertilize, Seed, & Hay Mulch	2.39 AC	1,500.00		1.81	1.81	2,715.00	2,715.00
13.	Farm Fence Type F-4M	1,960 LF	1.00		2,927	2,927.00	2,927.00	2,927.00
14.	Farm Fence - Single Panel	7 EA	60.00		8	8.00	480.00	480.00
15.	Farm Fence - Double Panel	25 EA	90.00		26	26.00	2,340.00	2,340.00
16.	Farm Fence Gates Type F-4	80 LF	5.00		96	96.00	<u>480.00</u>	<u>480.00</u>
	Subtotal:						\$ 28,030.50	\$ 28,030.50
	Change Order Items for Klein Maintenance							
1a.	Mobilization	1 LS	500.00		1	1.00	500.00	500.00
9a.	Provide Water	1.5 KGAL	10.00		1.5	1.50	15.00	15.00
17a.	Erosion Control Blanket	320 SY	2.50		320	320.00	800.00	800.00
18a.	Site Work - Labor	11 HR	22.00		11	11.00	242.00	242.00
19a.	JD 755 Track Loader Time	2.5 HR	75.00		2.5	2.50	<u>187.50</u>	<u>187.50</u>
	Subtotal						\$ 1,744.50	\$ 1,744.50
	Change Order Items for Big Union Maintenance							
1b.	Mobilization	1 LS	300.00		1	1.00	300.00	300.00
9b.	Provide Water	4.5 KGAL	10.00		4.5	4.50	45.00	45.00
17b.	Erosion Control Blanket	2,000 SY	2.50		2,000	2,000.00	5,000.00	5,000.00
18b.	Site Work - Labor	9 HR	22.00		9	9.00	<u>198.00</u>	<u>198.00</u>
	Subtotal						\$ 5,543.00	\$ 5,543.00
TOTAL							\$ 35,318.00	\$ 35,318.00





## **ATTACHMENT 4**

### **ANALYSIS OF CONSULTANT COSTS INCURRED**



# SOUTHEAST PROJECT FINAL REPORT

ANALYSIS OF CONSULTANT COSTS INCURRED  
FOR THE MONTANA DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU  
AMR PROJECT NUMBER: DSL-AMRB 90-018  
SOUTHEAST PROJECT

DATE OF PREPARATION: FEBRUARY 28TH, 1991

ENGINEERING SERVICE	AMOUNT
DESIGN ENGINEERING:	
1989-90 CONTRACT	\$17,830.43
1990-91 CONTRACT	<u>\$18,125.85</u>
SUBTOTAL DESIGN ENGINEERING COST:	<u>\$35,956.28</u>
CONSTRUCTION ENGINEERING AND PROJECT ADMINISTRATION COST:	
1990-91 CONTRACT	<u>\$14,948.85</u>
SUBTOTAL CONSTRUCTION ENGINEERING COST:	<u>\$14,948.85</u>
PROJECT ENGINEERING COST:	<u>\$50,905.13</u>
CONSTRUCTION COST:	<u>\$35,318.00</u>
PERCENTAGE ENGINEERING FEES TO CONSTRUCTION COST:	
DESIGN ENGINEERING/CONSTRUCTION COST	101.81
CONSTRUCTION ENGINEERING/CONSTRUCTION COST	42.32
TOTAL ENGINEERING COST/CONSTRUCTION COST	144.13

REMARKS: Services provided included landowner contact and consent, budget preparation, basic engineering and reclamation design, bid document preparation, construction staking, contract administration, quantity accounting, full time construction/reclamation inspection and final report preparation and project close-out.





## **ATTACHMENT 5**

### **PRE-CONSTRUCTION (BID PACKAGE) DRAWINGS**



# SOUTHEAST PROJECT

LOCATED IN  
CUSTER, POWDER RIVER, ROSEBUD,  
AND TREASURE COUNTIES, MONTANA

DSL/AMRB 90-018

PREPARED FOR:

MONTANA DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU

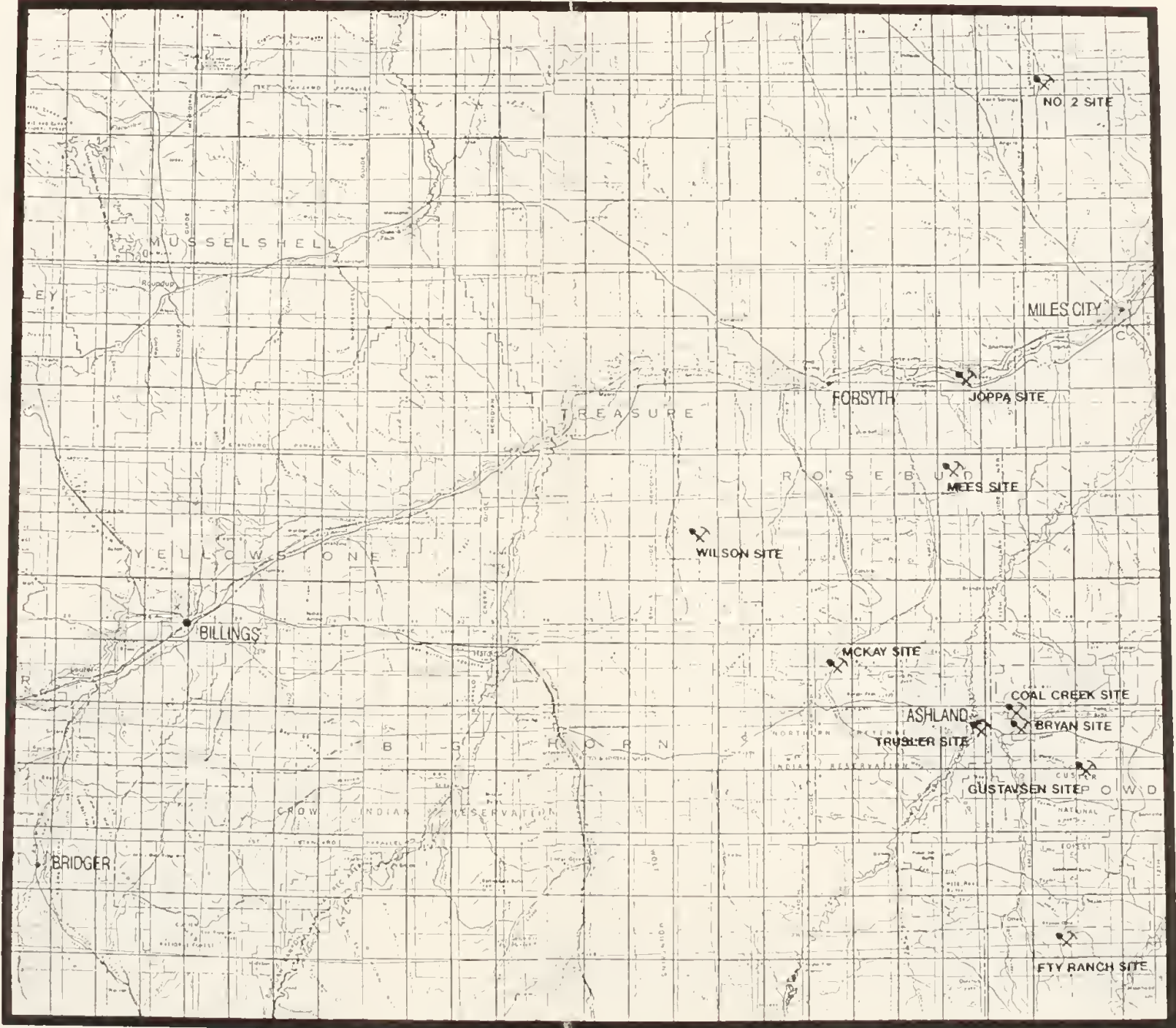
## INDEX

DESCRIPTION	SHEET NO.
COVER SHEET	1
WILSON SITE PLAN	2
NO. 2 SITE PLAN	3
FTY RANCH SITE PLAN	4
BRYAN SITE PLAN	5
COAL CREEK SITE PLAN	6
GUSTAVSEN SITE PLAN	7
TRUSLER SITE PLAN	8
JOPPA SITE PLAN	9
MEES SITE PLAN	10
McKAY SITE PLAN	11

REDUCED PRINTS APPROX. 1/2 ORIGINAL SCALE

PREPARED BY:  
**SPECTRUM ENGINEERING**  
Mining and Civil Engineers

3302 4th AVE. NORTH  
BILLINGS, MONTANA



AREA MAP



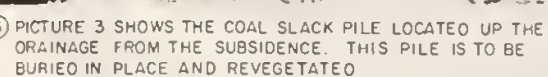
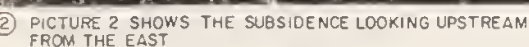
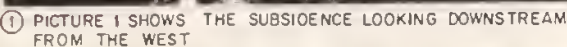
## LANDOWNERS AND CONTACT PERSONS

<b>TREASURE COUNTY</b>	<b>COAL CREEK</b>
<b>WILSON SITE</b>	Glacier Park Company
Lee Wilson	Attn: Jim Bishop
P.O. Box 898	P.O. Box 579
Hysham, MT. 59083	Miles City MT. 59301
Phone 406/342-5303	Phone: 406/232-1274
<b>CUSTER COUNTY</b>	<b>GUSTAVSEN</b>
<b>NO. 2</b>	Trusler, Inc.
Glacier Park Company	W.W. Bill Trusler
James L. Bishop	P.O. Box 306
Director Land Management	Ashland MT. 59003
519 Main Street	Phone: 406/784-2337
P.O. Box 579	
Miles City, MT 59301	
406/232-1274	
<b>POWDER RIVER COUNTY</b>	<b>ROSEBUD COUNTY</b>
<b>FTY RANCH</b>	<b>TRUSLER</b>
Lawrence Yunkce	Trusler, Inc.
FTY Ranch, Box 6288	W.W. Bill Trusler
Sheridan, WY. 82801	P.O. Box 306
Office 307/674-7451	Ashland MT. 59003
Home 307/672-5084	Phone: 406/784-2337
Ranch House 406/784-2721	
Lynn McIntyre (Ranch Manager)	<b>JOPPA</b>
406/784-2728	Hunt Oil Co.
<b>BRYAN MINE</b>	Fountain Place
Custer National Forest	1445 Ross at Field
Billings, MT.	Dallas, Tx. 75202-2785
	Phone: 214/978-8000
c/o Ashland Ranger district	<b>MEES</b>
Custer National Forest	Lavon Mees Trust
John Maelvar, District Ranger	c/o Mark Mees
P.O. Box 168	Mees Hereford Ranch
Ashland, MT 59003	Rosebud, MT 59347
406/784-2344	406/347-5413
	<b>McKAY</b>
	Peabody Development Co.
	Attn: Vic Garber
	P.O. Box 706
	Douglas, WY 82633
	307/358-6803



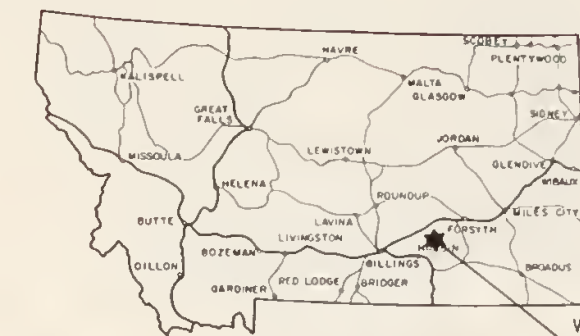
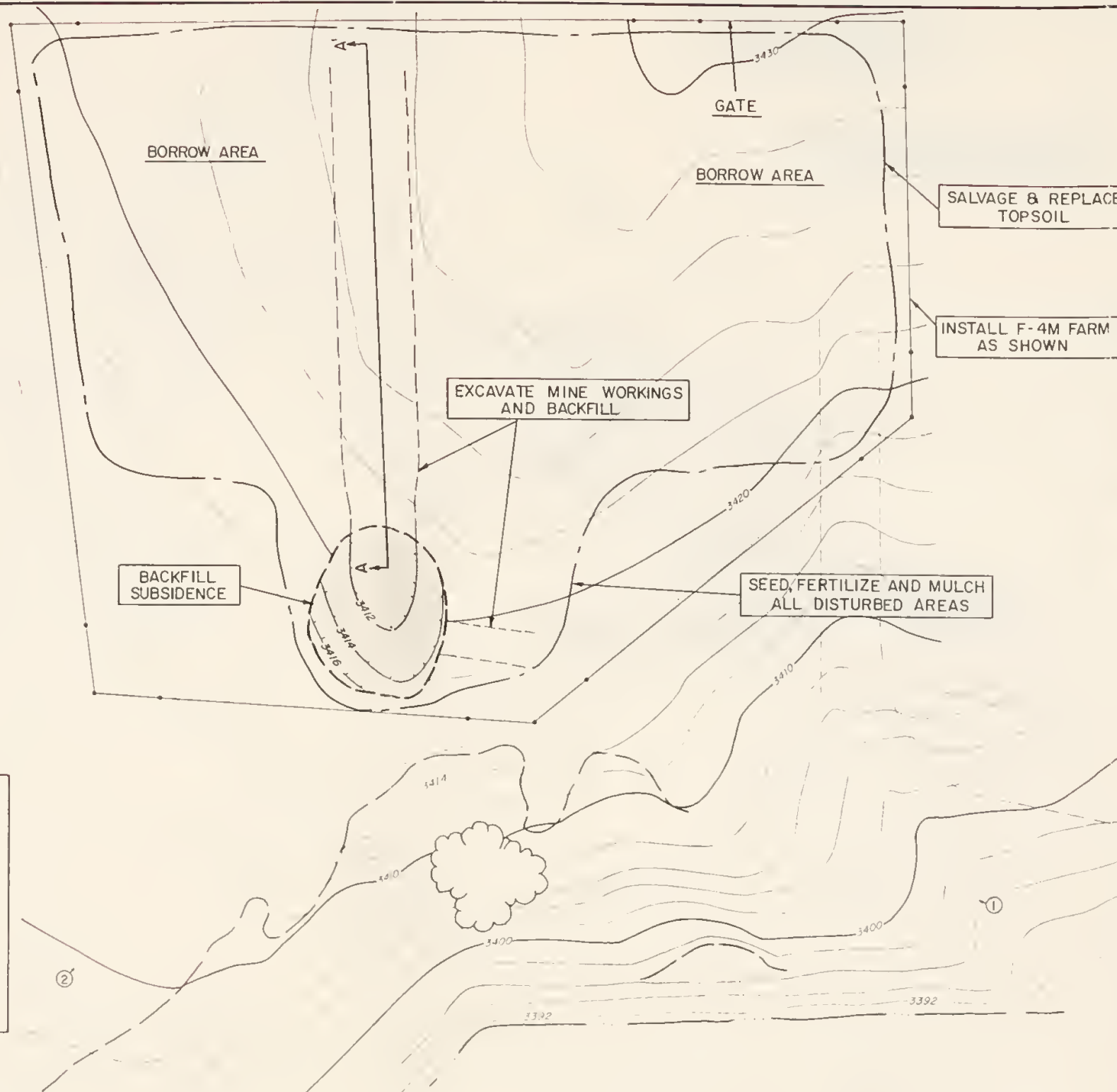
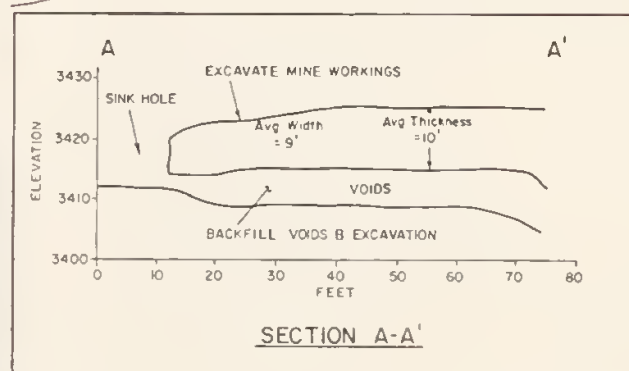






CONSTRUCTION IS LIMITED TO  
THE AREA SHOWN ON THIS  
TOPOGRAPHIC MAP

VEHICLE TRAVEL WILL BE LIMITED  
TO ROUTES FLAGGED ON-SITE BY  
THE PROJECT ENGINEER.



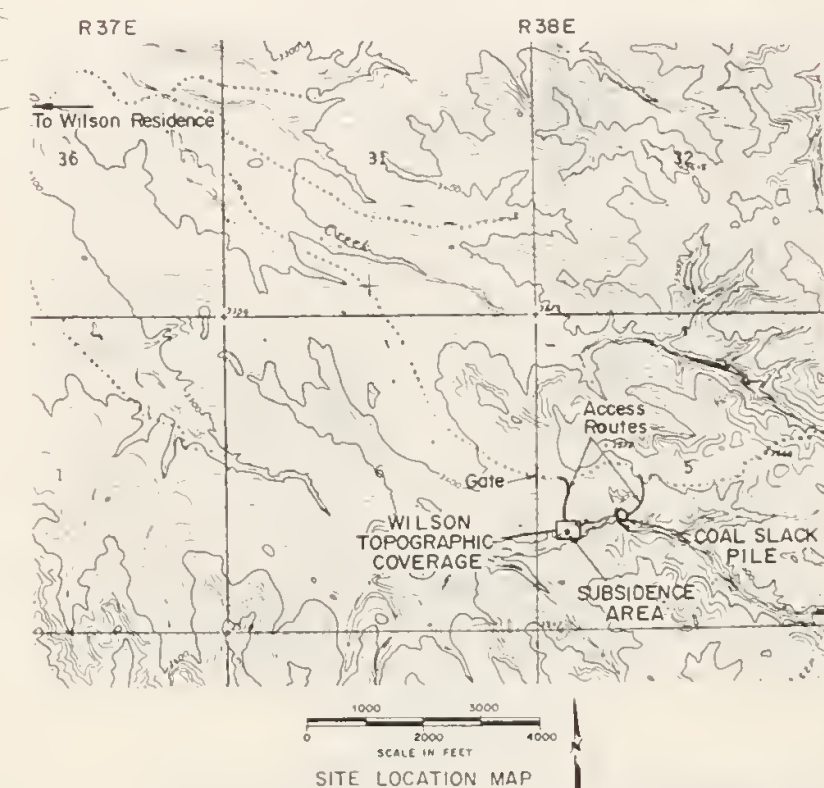
STATE LOCATION MAP

WILSON  
PROJECT  
SITE



SCALE IN MILES

VICINITY ACCESS MAP



## SITE PLAN AND GENERAL LAYOUT

WILSON SITE  
SECTION 5, T2N, R38E  
TREASURE COUNTY, MONTANA

STATE OF MONTANA  
DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

SPECTRUM ENGINEERING  
Mining and Civil Engineers

3302 4th AVE NORTH  
BILLINGS, MONTANA

DATE	August 1990		
DRAWN BY:	OLO		
APPROVED BY	GWR		
	REVISIONS		
NO	DATE		
SHEET NO 2 of			

### WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
TOPSOIL	SUBSIDENCES/BORROW AREAS	STRIP AND STOCKPILE	100 CY
	FROM BORROW AREA	DIRECT PLACE	90 CY
TOTAL (EST.)	STOCKPILES	PLACE FROM STOCKPILE	<u>100 CY</u>
			290 CY
SUBSIDENCE	SEE TOPOGRAPHIC MAP	BACKFILL	80 CY
WATER	BACKFILL	FOR COMPACTION	5.0 KGAL
	ROADS AND OTHER AREAS	DUST SUPPRESSION	<u>2.0 KGAL</u>
			7.0 KGAL
MINE WORKINGS	SEE MAP	EXCAVATE	400 CY
		BACKFILL	400 CY
		BACKFILL WITH BORROW	<u>100 CY</u>
			900 CY
COAL SLACK AREA	REGRADED COAL SLACK PILE	REGRADE IN PLACE	60 CY
		NEUTRALIZE AT 5 TONS	0.10 ACRES
		PER ACRE PURE CaCO <sub>3</sub>	(0.5 TONS)
DISTURBED AREAS	COAL SLACK AREA	REVEGETATE	0.10 ACRES
	SUBSIDENCE AND BORROW	REVEGETATE	0.19 ACRES
	AREAS	REVEGETATE	<u>0.25 ACRES</u>
TOTAL (EST.)			0.54 ACRES
REVEGETATION OF	FERTILIZER AT 92.5 LBS	APPLY	50 POUNDS
0.54 ACRES	SEED AT 23 LBS PLS	DRILL SEED	12.4 LB PLS
	HAY MULCH AT 3,000 LBS	SPREAD AND CRIMP	1,620 POUNDS
FENCE	TYPE F-4M FARM FENCE	INSTALL	530 L FT
	SINGLE PANELS	INSTALL	2 EACH
	DOUBLE PANELS	INSTALL	9 EACH
	TYPE F-4 FARM FENCE GATES	INSTALL	32 L FT

### WORK DESCRIPTION

SUBSIDENCE AREA

- STRIP AND STOCKPILE 4 INCHES OF TOPSOIL FROM THE BORROW AREA, AREAS OVER MINE VOIDS, AND THE SUBSIDENCE PIT.
- EXCAVATE THE UNDERGROUND MINE VOIDS, AS SHOWN
- BACKFILL THE MINE VOIDS, EXCAVATIONS, AND SUBSIDENCE. USE STOCKPILED AND BORROW MATERIAL.
- PLACE TOPSOIL FROM THE STOCKPILES OVER THE SUBSIDENCE AND BORROW AREAS
- REVEGETATE ALL DISTURBED AREAS
- INSTALL 4-FM FARM FENCE, SINGLE AND DOUBLE PANELS, AND GATE, AS SHOWN

## COAL SLACK PILE

- STRIP AND STOCKPILE 4 INCHES OF TOPSOIL FROM THE BORROW AND CDAL SLACK BURIAL AREAS
- REGRADE THE COAL SLACK IN PLACE BLENDING THE CONTOURS IN WITH SURROUNDING TOPDGRAPHY
- NEUTRALIZE THE COAL SLACK AREA
- PLACE TOPSOIL FROM THE BORROW AREA AND STOCKPILE OVER THE COAL SLACK AREA.
- REVEGETATE ALL DISTURBED AREAS
- INSTALL 4-FM FARM FENCE, SINGLE AND DOUBLE PANELS, AND GATE.




LANDOWNER AND CONTACT  
SECTION 5, T2N, R38E

LEE WILSON  
P.O. BOX 895  
HYSHAM, MT. 59083  
PHONE (406) 342-5303



Vertical Datum Based On Interpolation Of  
USGS 7 1/2' Quadrangle MINNEHAHA CR SOUTH  
Topography Prepared From Ground Survey  
Conducted In 1983 By Spectrum Engineering  
Using A Pione 10b And Alidade This  
Topography Is Of Reconnaissance Class  
And Has Not Been Field Checked

LEGENO

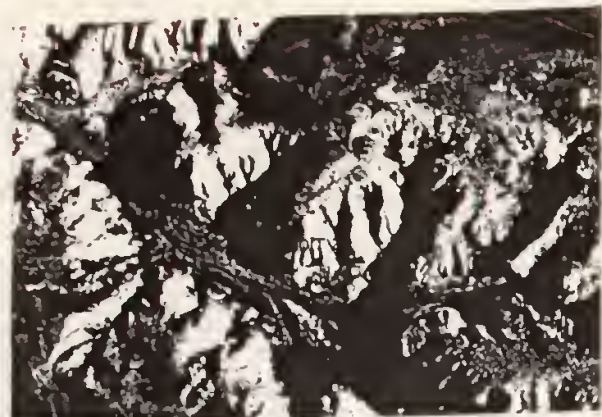
- |   |            |   |  |
|---|------------|---|--|
| — 3410 —  | CONTOUR    | ① →   | PICTURE NUMBER<br>AND ORIENTATION      |
|  | COAL SLACK |  SP1 | SUBSIOENCE PIT (SP<br>NUMBER (B DEPTH) |
| — —   | DRAINAGE   |      | OPEN ADIT                              |

## NOTICE

AN ABANDONED COAL MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.



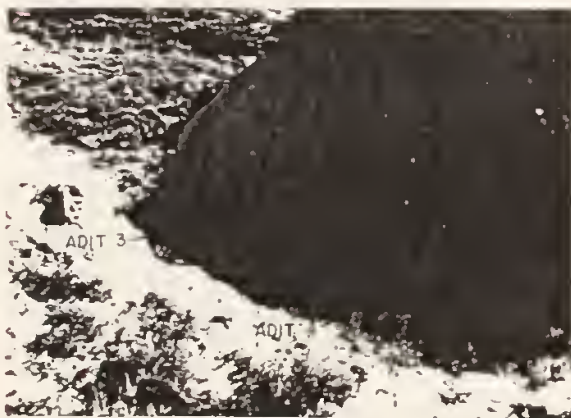




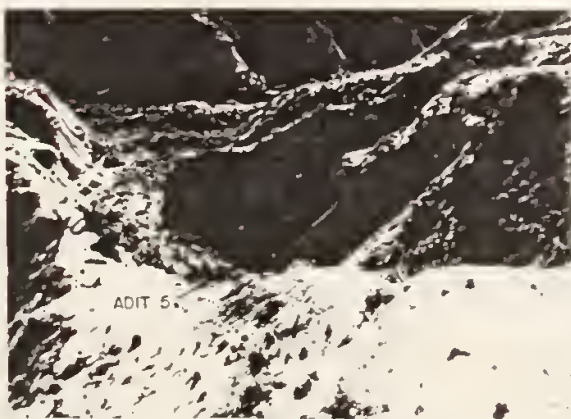
1 PICTURE 1 SHOWS AN AERIAL VIEW OF THE FIVE ADITS.



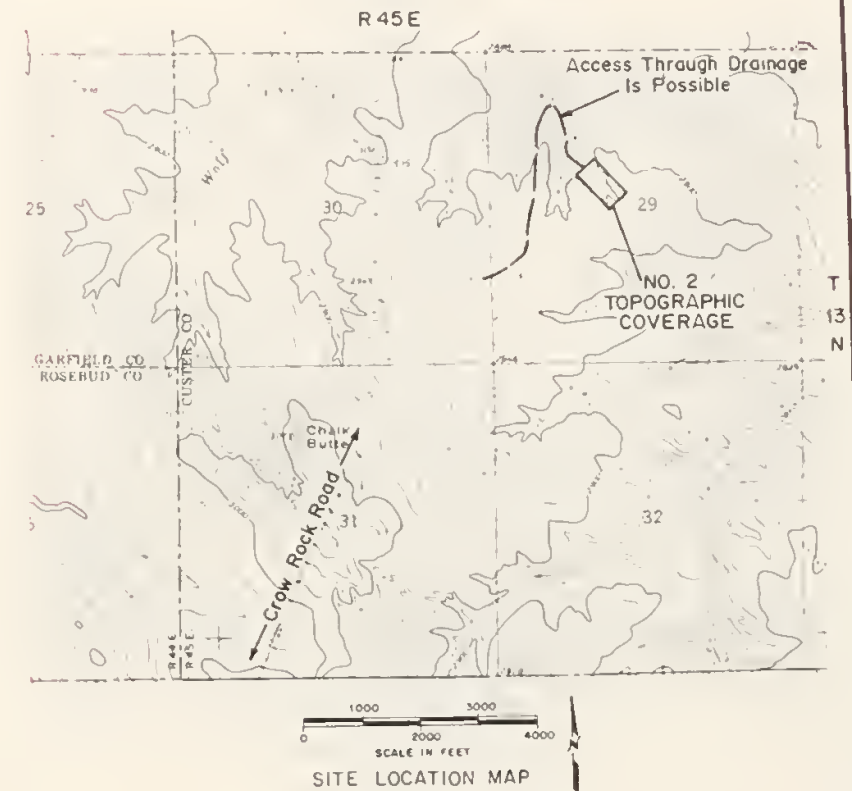
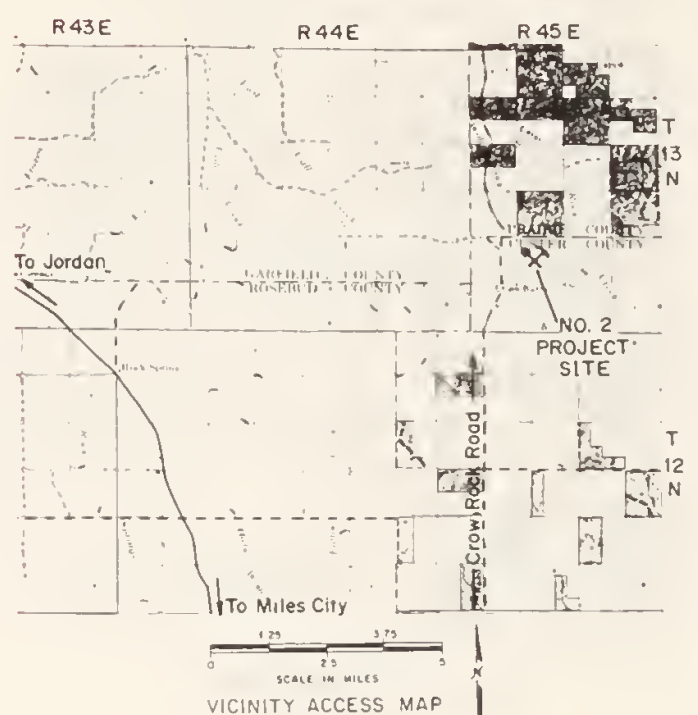
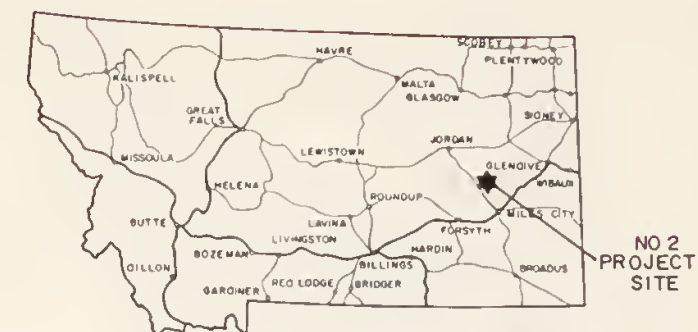
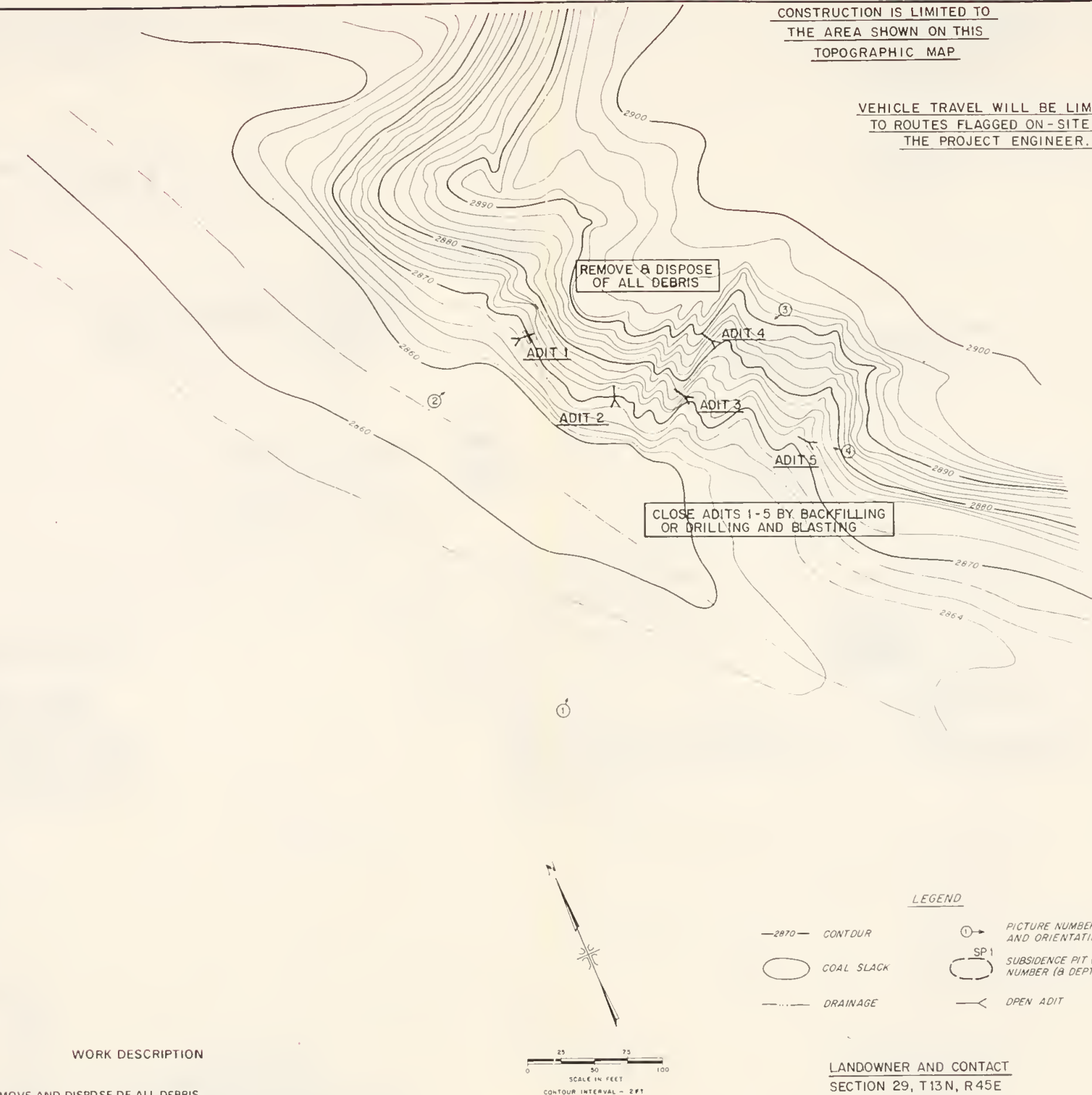
2 PICTURE 2 SHOWS ADIT 1. THE ADIT IS OPEN AND DEBRIS IS PRESENT



3 PICTURE 3 SHOWS ADITS 3 AND 4



4 PICTURE 4 SHOWS ADIT 5.



- WORK DESCRIPTION
- REMOVE AND DISPOSE OF ALL DEBRIS.
  - CLOSE ADITS 1 THROUGH 5. THE CONTRACTOR MAY EMPLOY BACKFILLING OR DRILLING AND BLASTING.

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.

SITE PLAN AND GENERAL LAYOUT	
NO. 2 SITE	
SECTION 29, T13N, R45E CUSTER COUNTY, MONTANA	
STATE OF MONTANA DEPARTMENT OF STATE LANDS ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION	
SPECTRUM ENGINEERING Mining and Civil Engineers 3302 4th AVE NORTH BILLINGS, MONTANA	
DATE August 1990	DRAWN BY DLO
APPROVED BY GWR	REVISIONS
NO	DATE
SHEET NO 3 of 11	



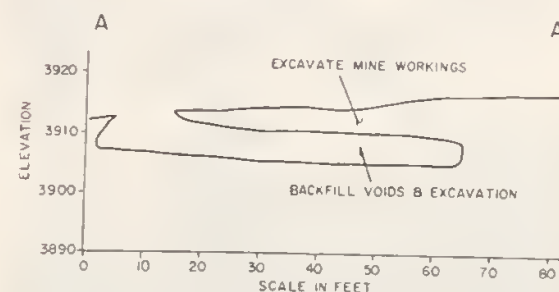




1 PICTURE 1 IS AN AERIAL VIEW OF THE ADIT AND SUBSIDENCES.



2 PICTURE 2 SHOWS THE TIMBERS AND DEBRIS AT THE ADIT



SECTION A-A'

WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
TOPSOIL	SUBSIDENCES/BORROW AREA	STRIP AND STOCKPILE	130 CY
	STOCKPILES	PLACE FROM STOCKPILE	130 CY
TOTAL (EST.)			260 CY
SUBSIDENCES			
SP 1	SEE TOPOGRAPHIC MAP	BACKFILL	25 CY
SP 2	SEE TOPOGRAPHIC MAP	BACKFILL	20 CY
SP 3	SEE TOPOGRAPHIC MAP	BACKFILL	55 CY
SP 4	SEE TOPOGRAPHIC MAP	BACKFILL	50 CY
TOTAL (EST.)			150 CY
WATER	BACKFILL ROADS AND OTHER AREAS	FOR COMPACTION DUST SUPPRESSION	5.5 KGAL
			2.5 KGAL
			8.0 KGAL
MINE WORKINGS	SEE MAP	EXCAVATE BACKFILL BACKFILL WITH BORROW	290 CY
			290 CY
			110 CY
			690 CY
DISTURBED AREAS	SUBSIDENCE AREA BORROW AREA	REVEGETATE REVEGETATE	0.10 ACRES
			0.15 ACRES
			0.25 ACRES
TOTAL (EST.)			
REVEGETATION OF 0.25 ACRES	FERTILIZER AT 92.5 LBS SEED AT 23 LBS PLS HAY MULCH AT 3,000 LBS	APPLY DRILL SEED SPREAD AND CRIMP	23 POUNDS
			5.8 LB PLS
			750 POUNDS
FENCE	TYPE F-4M FARM FENCE SINGLE PANELS DOUBLE PANELS TYPE F-4 FARM FENCE GATES	INSTALL INSTALL INSTALL	400 L FT
			2 EACH
			6 EACH
			16 L FT

WORK DESCRIPTION

- REMOVE AND DISPOSE OF ALL DEBRIS.
- STRIP AND STOCKPILE 4 INCHES OF TOPSOIL FROM THE BORROW AREA, AREAS OVER MINE VOIDS, AND THE SUBSIDENCE PITS.
- EXCAVATE THE UNDERGROUND MINE VOIDS.
- BACKFILL THE MINE VOIDS, EXCAVATIONS, AND SUBSIDENCE. USE STOCKPILED AND BORROW MATERIAL.
- PLACE TOPSOIL FROM THE STOCKPILES OVER THE SUBSIDENCE AND BORROW AREAS.
- REVEGETATE ALL DISTURBED AREAS.
- INSTALL F-4M FARM FENCE, SINGLE AND DOUBLE PANELS, AND GATE, AS DIRECTED.

Vertical Datum Based On Interpolation Of USGS 7 1/2' Quadrangle: REANUS CONE, MT Topography Prepared From Ground Survey Conducted In 1989 By Spectrum Engineering Using A Plane Table And Alidade This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY

CONSTRUCTION IS LIMITED TO THE AREA SHOWN ON THIS TOPOGRAPHIC MAP

GATE

BORROW AREA

INSTALL F-4M FARM FENCE AS SHOWN

SEED, FERTILIZE, AND MULCH ALL DISTURBED AREAS

EXCAVATE MINE WORKINGS

STRIP AND STOCKPILE TOPSOIL FROM SUBSIDENCES, EXCAVATION LIMITS AND BORROW AREA

REGRADE AND PLACE TOPSOIL ON ALL DISTURBED AREAS

BACKFILL SUBSIDENCES

SP 3

ADIT I

EXCAVATE MINE WORKINGS

REMOVE AND DISPOSE OF ALL DEBRIS

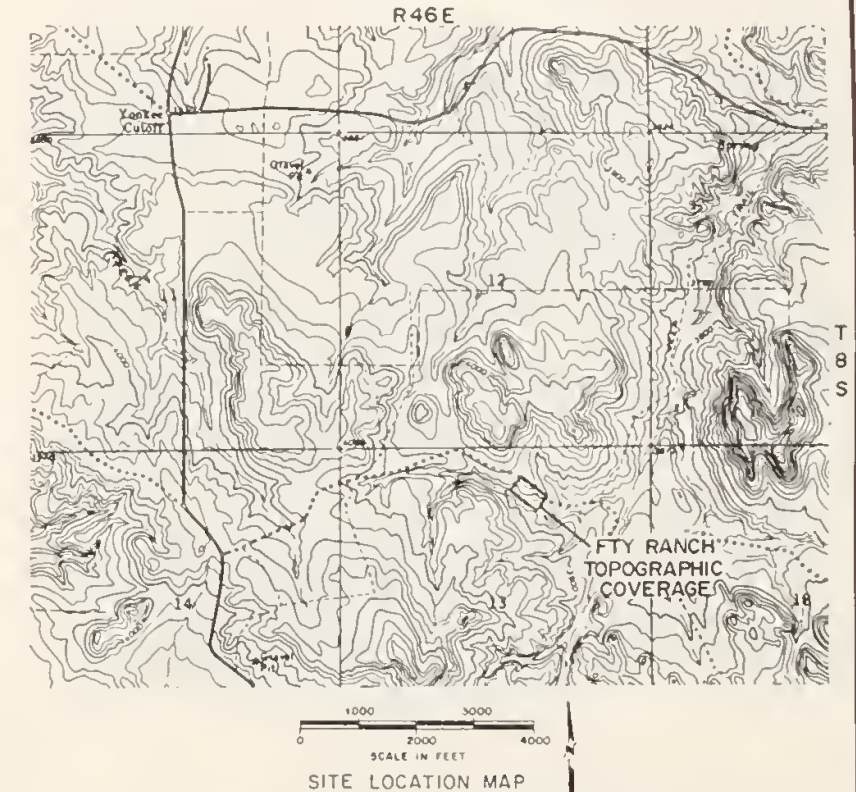
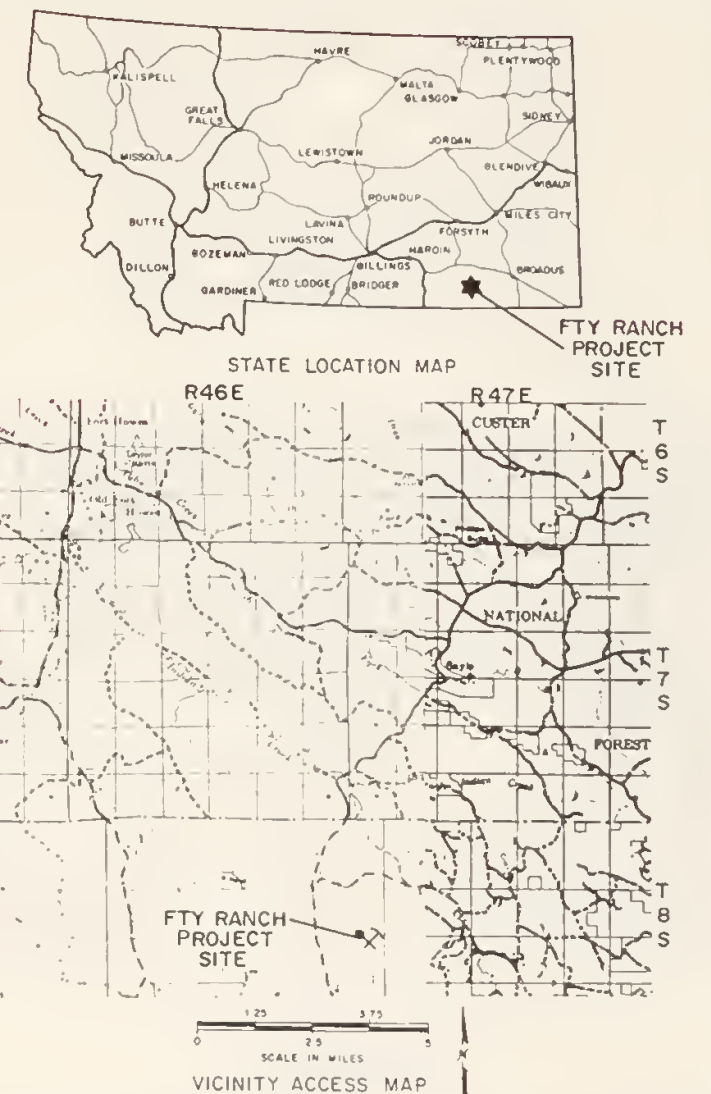
BACKFILL SUBSIDENCE

LEGEND

- 3900 CONTOUR
- COAL SLACK
- DRAINAGE
- 1 PICTURE NUMBER AND ORIENTATION
- SP 1 SUBSIDENCE PIT (SP) NUMBER (B DEPTH)
- OPEN ADIT

NOTICE

AN ABANDONED COAL MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.



SITE PLAN AND GENERAL LAYOUT

FTY RANCH SITE  
SECTION 13, T8S, R46E  
POWDER RIVER COUNTY, MONTANA

STATE OF MONTANA  
DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

SPECTRUM ENGINEERING  
Mining and Civil Engineers

3302 4th AVE NORTH  
BILLINGS, MONTANA

DATE	August 1990	
DRAWN BY	OLO	
APPROVED BY	GWR	
REVISIONS		
NO	DATE	BY
SHEET NO 4 of 11		









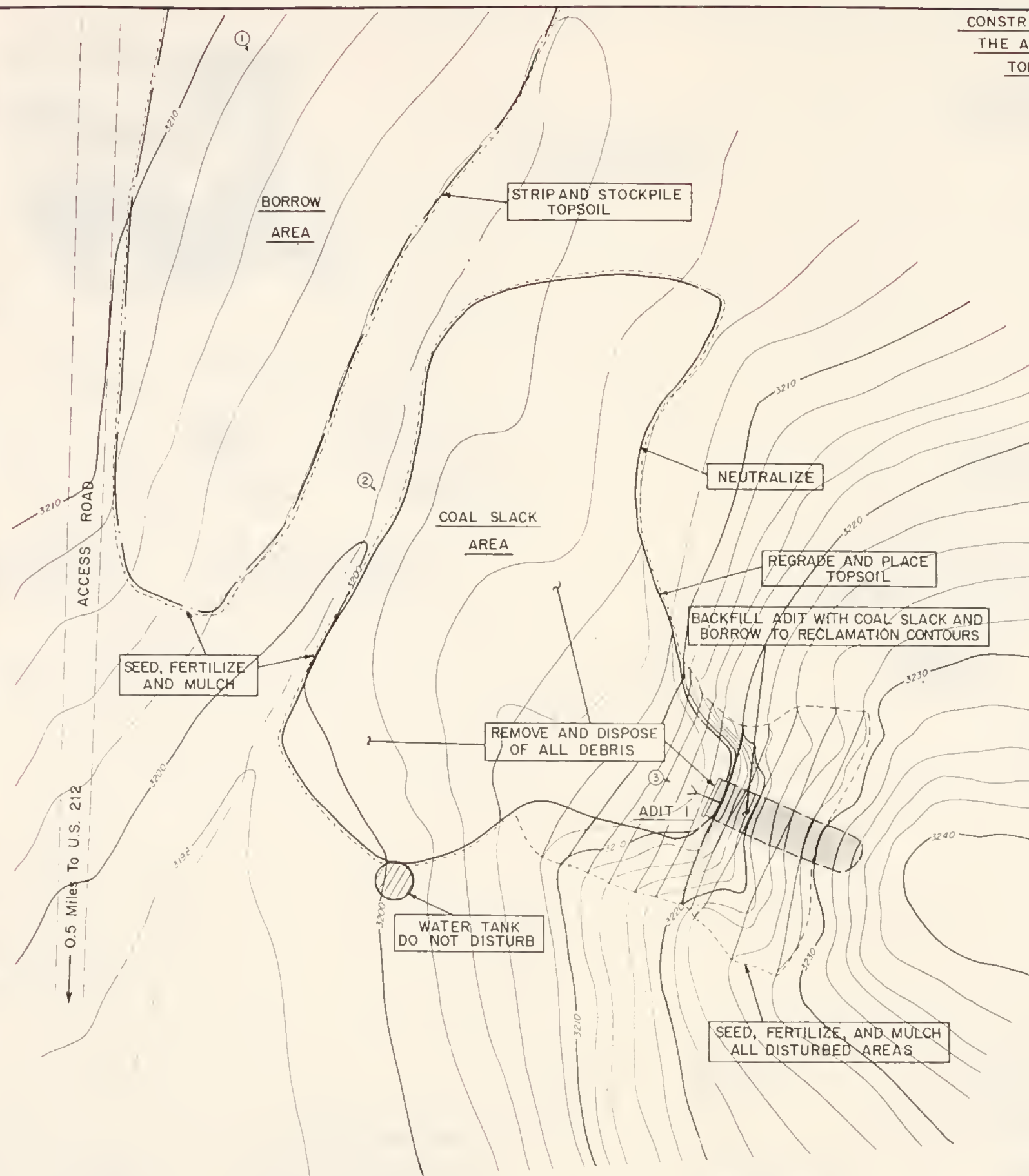
1 PICTURE 1 IS AN AERIAL VIEW OF THE BRYAN SITE.



2 PICTURE 2 SHOWS THE ADIT, COAL SLACK AREA, AND DEBRIS.



3 PICTURE 3 SHOWS THE PARTIALLY BLOCKED ADIT ENTRANCE



CONSTRUCTION IS LIMITED TO  
THE AREA SHOWN ON THIS  
TOPOGRAPHIC MAP

VEHICLE TRAVEL WILL BE LIMITED  
TO ROUTES FLAGGED ON-SITE BY  
THE PROJECT ENGINEER.

LANDOWNER AND CONTACT  
SECTION 18, T3S, R46E

CUSTER NATIONAL FOREST  
BILLINGS, MT.

% ASHLAND RANGER DISTRICT  
CUSTER NATIONAL FOREST  
JOHN MACIVOR, DISTRICT RANGER  
P.O. BOX 168  
ASHLAND, MT. 59003  
PHONE (406) 784-2344



10 20 30 40  
SCALE IN FEET  
CONTOUR INTERVAL - 2 FT

#### LEGEND

- 3220 CONTOUR  
COAL SLACK  
DRAINAGE  
PICTURE NUMBER AND ORIENTATION  
UNDERGROUND  
MINE WORKINGS  
OPEN ADIT

Vertical Datum Based On Interpolation Of  
USGS 1/4' Quadrangle COLEMAN DRAW, MT  
Topography Prepared From Ground Survey  
Conducted In 1989 By Spectrum Engineering  
Using A Plane Table And Alidade. This  
Topography Is Of Reconnaissance Class  
And Has Not Been Field Checked

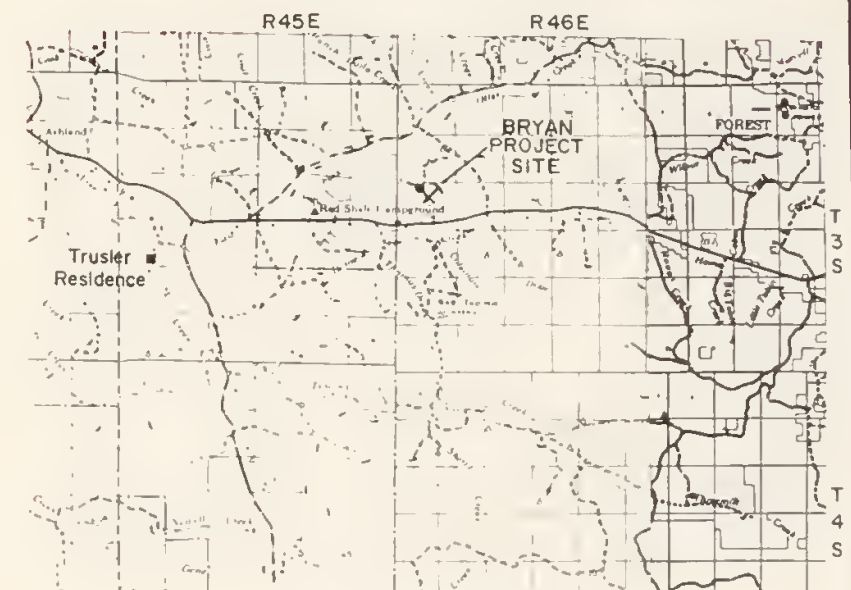
#### NOTICE

AN ABANDONED COAL MINE UNDERLIES THIS SITE  
MANY POTENTIAL HAZARDS EXIST. THE EXTENT  
OF THESE HAZARDS IS NOT FULLY KNOWN.  
CONTRACTORS AND OTHER PERSONS WORKING AT  
THE SITE SHALL APPRISE THEMSELVES OF THE  
CONDITIONS AND TAKE WHATEVER STEPS ARE  
DEEMED NECESSARY TO INSURE SAFETY WHILE  
PERFORMING THEIR DUTIES.

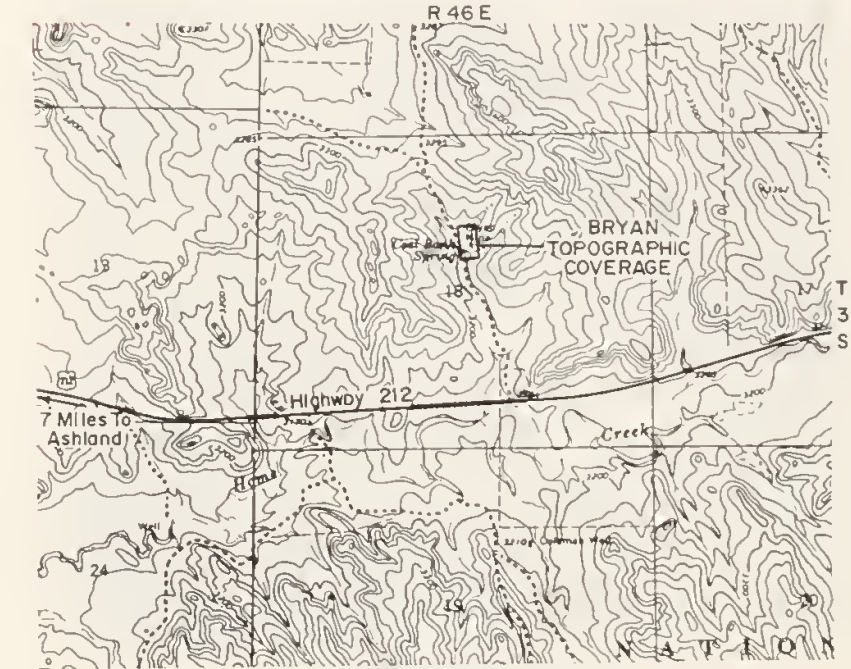
ADDITIONAL INFORMATION PERTAINING TO THIS  
SITE MAY EXIST IN THE DEPARTMENT OF STATE  
LANDS' FILES OR AT SPECTRUM ENGINEERING'S  
OFFICE. THIS MATERIAL IS AVAILABLE FOR  
REVIEW BY ANY INTERESTED PARTY.



STATE LOCATION MAP  
BRYAN PROJECT SITE



1 2.5 3.75 5  
SCALE IN MILES  
VICINITY ACCESS MAP



1000 2000 3000 4000  
SCALE IN FEET  
SITE LOCATION MAP

#### WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
TOPSOIL	BORROW AREA	STRIP AND STOCKPILE	210 CY
	COAL SEACK AND ADIT	DIRECT PEACE	170 CY
	BORROW AREA	PEACE FROM STOCKPILE	210 CY
TOTAL (EST.)			590 CY
ADIT 1 AREA	SEE TOPOGRAPHIC MAP	BACKFILL W/COAL SEACK AND BORROW MATERIAL	470 CY
WATER	SUBSIDENCE BACKFILL	FOR COMPACTION	6.5 KGAL
	ROADS AND OTHER AREAS	DUST SUPPRESSION	2.0 KGAL
TOTAL (EST.)			8.5 KGAL
COAL SEACK AREA	COAL SEACK AREA AND BACKFILLED ADIT AREA	NEUTRALIZE AT 5 TONS PER ACRE PURE CaCO <sub>3</sub>	0.27 ACRES (1.35 TONS)
DISTURBED AREAS	COAL SEACK & ADIT AREAS	REVEGETATE	0.33 ACRES
	BORROW AREA	REVEGETATE	0.40 ACRES
TOTAL (EST.)	ACCESS ROADS (12' WIDTH)	REVEGETATE	0.02 ACRES
			0.75 ACRES
REVEGETATION OF 0.18 ACRES	FERTILIZER AT 92.5 LBS SEED AT 23 LBS PLS HAY MULCH AT 3,000 LBS	APPLY DRILL SEED SPREAD AND CRIMP	69 POUNDS 17.3 LB PLS 2,250 POUNDS

#### WORK DESCRIPTION

- REMOVE TIMBERS AND STRUCTURES FROM THE ADIT
- REMOVE AND DISPOSE OF ALL DEBRIS.
- CLOSE THE ADIT USING AN EARTH OR ROCK PLUG.
- STRIP AND STOCKPILE TOPSOIL FROM THE BORROW AREA.
- BACKFILL ADIT 1 WITH EXCESS COAL SEACK AND BORROW MATERIAL TO RECLAMATION CONTOURS
- REGRADE THE COAL SEACK AREA SMOOTH
- NEUTRALIZE THE COAL SEACK AREA.
- PEACE 6 INCHES OF TOPSOIL MATERIAL FROM THE BORROW AREA OVER THE COAL SEACK AND ADIT AREAS
- PEACE TOPSOIL FROM THE STOCKPILE OVER THE BORROW AREA
- REVEGETATE ALL DISTURBED AREAS

#### SITE PLAN AND GENERAL LAYOUT

BRYAN SITE  
SECTION 18, T3S, R46E  
POWDER RIVER COUNTY, MONTANA

STATE OF MONTANA  
DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

SPECTRUM ENGINEERING  
Mining and Civil Engineers

3302 4th AVE NORTH  
BILLINGS, MONTANA

DATE August 1990  
DRAWN BY: OLO  
APPROVED BY: GWR  
NO. DATE BY  
SHEET NO. 5 of 11



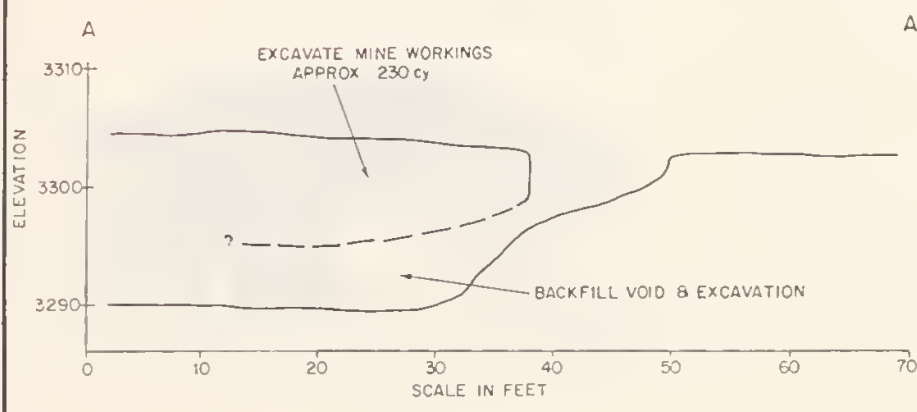
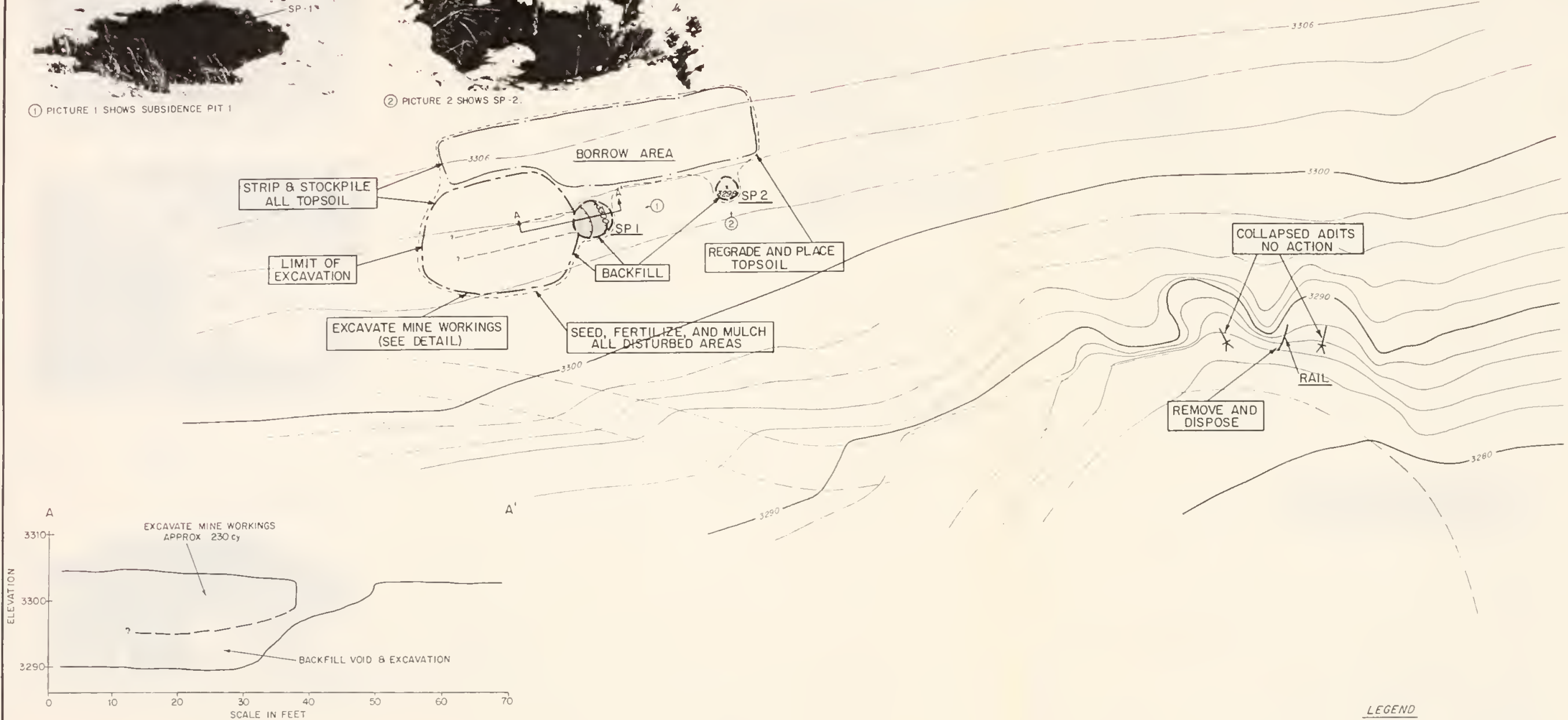




① PICTURE 1 SHOWS SUBSIDENCE PIT 1  
② PICTURE 2 SHOWS SP-2.

CONSTRUCTION IS LIMITED TO  
THE AREA SHOWN ON THIS  
TOPOGRAPHIC MAP

VEHICLE TRAVEL WILL BE LIMITED  
TO ROUTES FLAGGED ON-SITE BY  
THE PROJECT ENGINEER.



SECTION A-A'

WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
TOPSOIL	SUBSIDENCES/BORROW AREA	STRIP AND STOCKPILE	40 CY
	STOCKPILES	PLACE FROM STOCKPILE	40 CY
TOTAL (EST.)			80 CY
SUBSIDENCES			
SP 1	SEE TOPOGRAPHIC MAP	BACKFILL	15 CY
SP 2	SEE TOPOGRAPHIC MAP	BACKFILL	5 CY
TOTAL (EST.)			20 CY
WATER	BACKFILL	FOR COMPACTION	3.0 KGAL
	ROADS AND OTHER AREAS	DUST SUPPRESSION	1.0 KGAL
			4.0 KGAL
MINE WORKINGS	SEE MAP	EXCAVATE	230 CY
		BACKFILL	230 CY
		BACKFILL WITH BORROW	30 CY
			480 CY
DISTURBED AREAS	SUBSIDENCE AND BORROW AREA	REVEGETATE	0.10 ACRES
TOTAL (EST.)			
REVEGETATION OF 0.10 ACRES	FERTILIZER AT 92.5 LBS SEED AT 23 LBS PLS HAY MULCH AT 3,000 LBS	APPLY DRILL SEED SPREAD AND CRIMP	9 POUNDS 23 LB PLS 300 POUNDS

WORK DESCRIPTION

- REMOVE RAIL FROM THE COLLAPSED ADIT
- DISPOSE OF ALL DEBRIS
- STRIP AND STOCKPILE 4 INCHES OF TOPSOIL FROM THE BORROW AREA, AREAS OVER MINE VOIDS, AND THE SUBSIDENCE PITS.
- EXCAVATE THE UNDERGROUND MINE VOIDS
- BACKFILL THE MINE VOIDS, EXCAVATIONS, AND SUBSIDENCES USE STOCKPILED AND BORROW MATERIAL
- PLACE TOPSOIL FROM THE STOCKPILES OVER THE SUBSIDENCE AND BORROW AREAS.
- REVEGETATE ALL DISTURBED AREAS

Vertical Datum Based On Interpolation Of  
USGS 7 1/2' Quadrangle, WILLOW CROSSING, MT  
Topography Prepared From Ground Survey  
Conducted In 1989 By Spectrum Engineering  
Using A Plane Table And Alidade. This  
Topography Is Of Reconnaissance Class  
And Has Not Been Field Checked

ADDITIONAL INFORMATION PERTAINING TO THIS  
SITE MAY EXIST IN THE DEPARTMENT OF STATE  
LANDS' FILES OR AT SPECTRUM ENGINEERING'S  
OFFICE THIS MATERIAL IS AVAILABLE FOR  
REVIEW BY ANY INTERESTED PARTY

- LEGEND
- 3300 — CONTOUR
  - COAL SLACK
  - DRAINAGE
  - ① PICTURE NUMBER AND ORIENTATION
  - SP 1 SUBSIDENCE PIT (SP) NUMBER (B DEPTH)
  - OPEN ADIT

LANDOWNER AND CONTACT  
SECTION 3, T3S, R45E

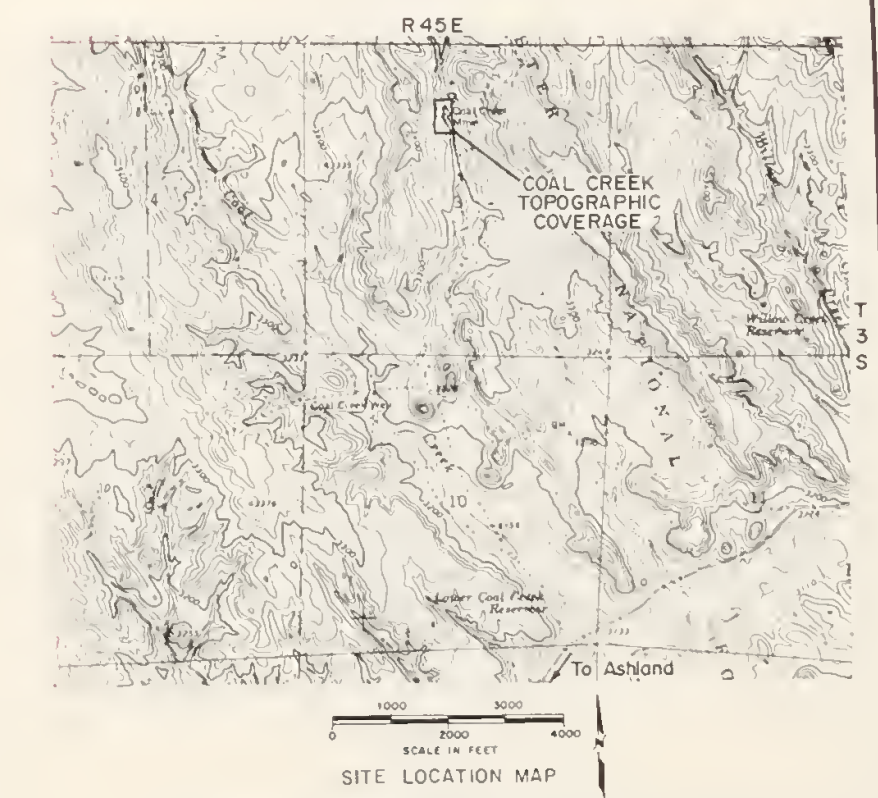
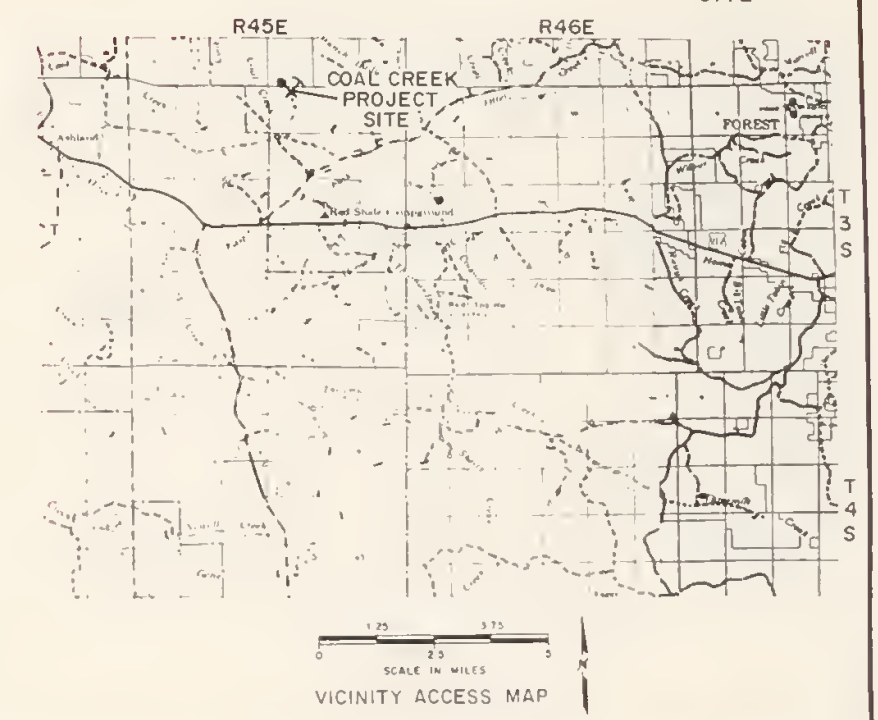
GLACIER PARK COMPANY  
ATTN: JIM BISHOP  
P.O. BOX 579  
MILES CITY, MT. 59301  
PHONE (406) 232-1274

NOTICE

AN ABANDONED COAL MINE UNDERLIES THIS SITE.  
MANY POTENTIAL HAZARDS EXIST. THE EXTENT  
OF THESE HAZARDS IS NOT FULLY KNOWN  
CONTRACTORS AND OTHER PERSONS WORKING AT  
THE SITE SHALL APPRISE THEMSELVES OF THE  
CONDITIONS AND TAKE WHATEVER STEPS ARE  
DEEMED NECESSARY TO INSURE SAFETY WHILE  
PERFORMING THEIR DUTIES.



STATE LOCATION MAP  
COAL CREEK PROJECT SITE



SITE PLAN AND GENERAL LAYOUT

COAL CREEK SITE  
SECTION 3, T3S, R45E  
POWDER RIVER COUNTY, MONTANA

STATE OF MONTANA  
DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

SPECTRUM ENGINEERING  
Mining and Civil Engineers

3302 4th AVE NORTH  
BILLINGS, MONTANA

DATE	August 1990
DRAWN BY	DLO
APPROVED BY	GWR
NO.	REVISIONS
DATE	BY
SHEET NO. 6 of 11	







① PICTURE 1 SHOWS THE ABANDONED RANCH HOUSE AND SHOP. THE AOIT IS TO THE LEFT OF THE HOUSE AND SHOP.



② PICTURE 2 IS AN AERIAL VIEW OF THE OPEN AOIT.



③ PICTURE 3 IS A CLOSE-UP OF THE AOIT OPENING. WORKINGS WIDEN AND DEEPEN INSIDE.

#### WORK DESCRIPTION

- CLOSE ADIT 1. THE CONTRACTOR MAY EMPLOY BACKFILLING OR DRILLING AND BLASTING.



CONSTRUCTION IS LIMITED TO THE AREA SHOWN ON THIS TOPOGRAPHIC MAP.

VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.

#### LEGEND

- 3500— CONTOUR
- COAL SLACK
- DRAINAGE
- ① PICTURE NUMBER AND ORIENTATION
- SP 1 SUBSIDENCE PIT (SP) NUMBER (8 DEPTH)
- OPEN AOIT

#### LANDOWNER AND CONTACT

TRUSLER, INC.  
W.W. BILL TRUSLER  
P.O. BOX 306  
ASHLAND, MT. 59003  
PHONE (406) 784-2337

#### NOTICE

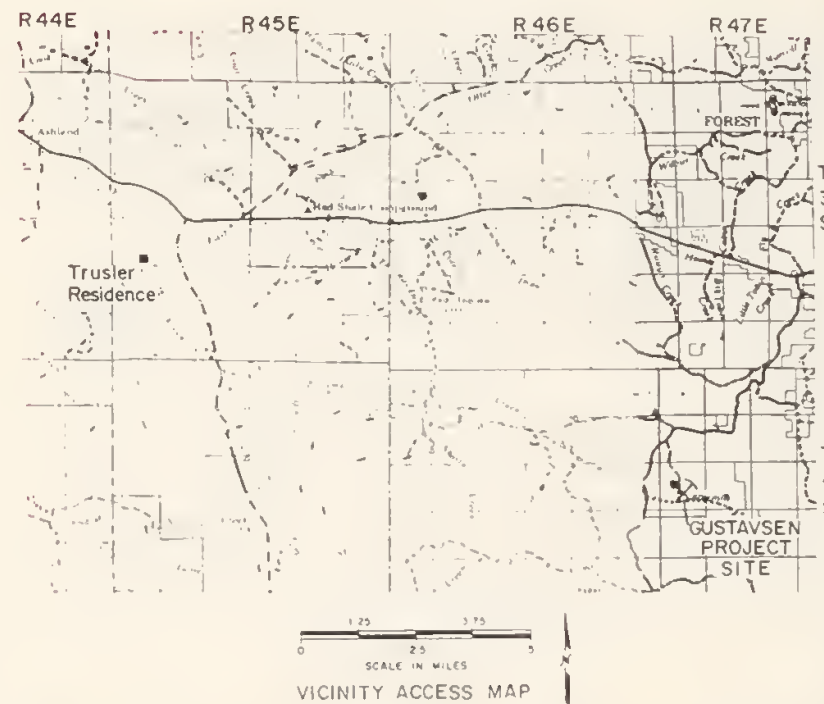
AN ABANDONED COAL MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.

Vertical Datum Based On Interpolation Of USGS 7 1/2" Quadrangle THREEMILE BUTTE, MT. Topography Prepared From Ground Survey Conducted In 1989 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked.



STATE LOCATION MAP



SITE LOCATION MAP

#### SITE PLAN AND GENERAL LAYOUT

GUSTAVSEN SITE  
SECTION 18, T4 S, R47 E  
POWDER RIVER COUNTY, MONTANA

STATE OF MONTANA  
DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

SPECTRUM ENGINEERING  
Mining and Civil Engineers

3302 4th AVE NORTH  
BILLINGS, MONTANA

DATE August 1990  
DRAWN BY: OLO  
APPROVED BY: GWR  
REVISIONS  
NO. DATE BY  
SHEET NO. 7 of 11



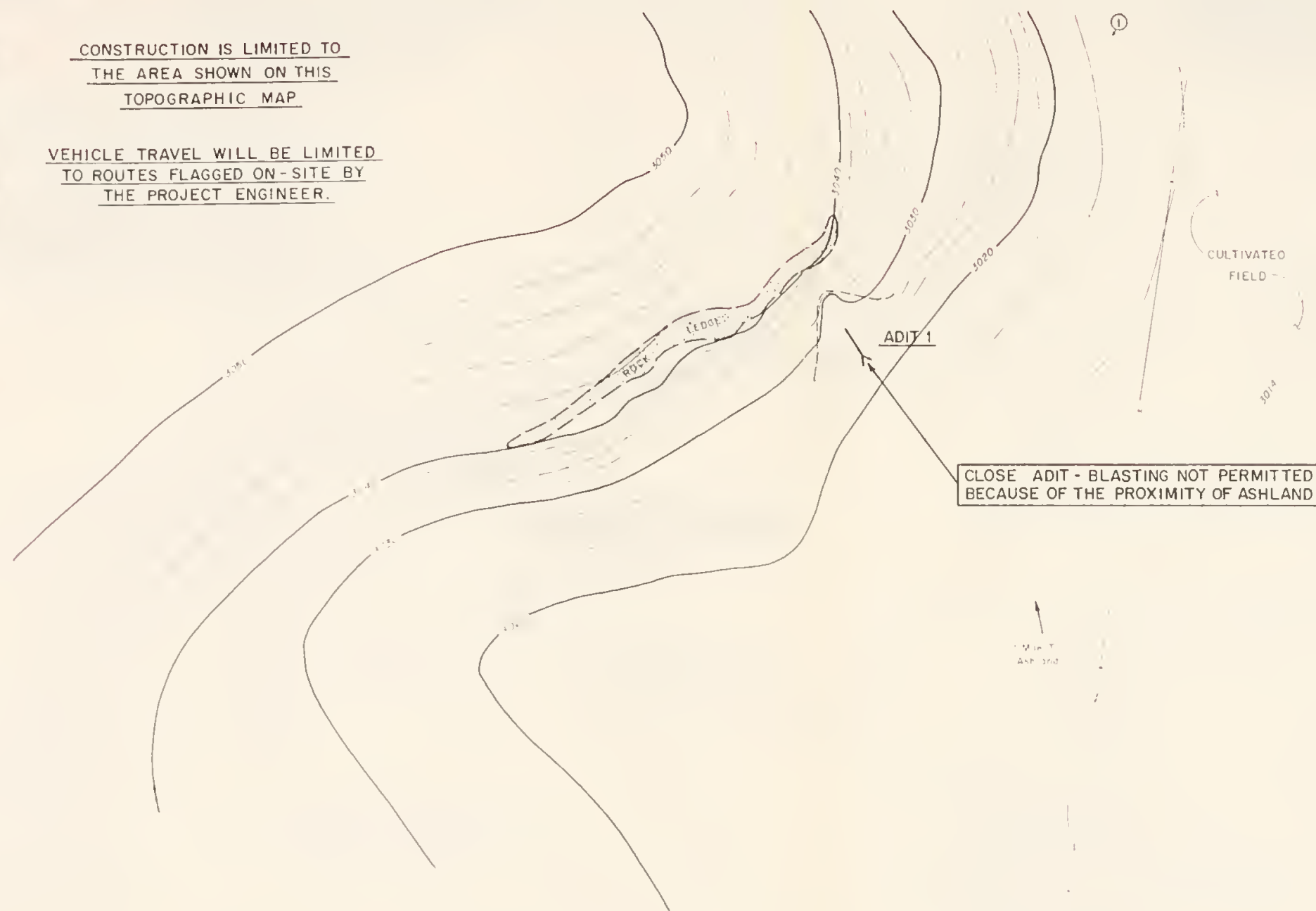




① PICTURE 1 SHOWS ADIT 1

CONSTRUCTION IS LIMITED TO  
THE AREA SHOWN ON THIS  
TOPOGRAPHIC MAP

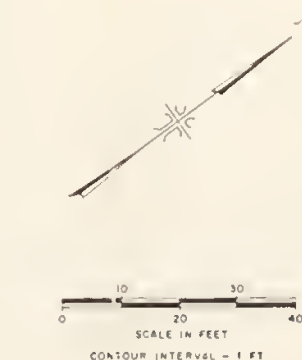
VEHICLE TRAVEL WILL BE LIMITED  
TO ROUTES FLAGGED ON-SITE BY  
THE PROJECT ENGINEER.



NOTE: DUE TO THE PROXIMITY OF ASHLAND,  
DRILLING AND BLASTING WILL NOT BE  
PERMITTED AT THIS SITE.

#### WORK DESCRIPTION

- CLOSE ADIT 1 BY BACKFILLING.



LEGEND	
— 3040 —	CONTOUR
○	COAL SLACK
— — —	DRAINAGE
①	PICTURE NUMBER AND ORIENTATION
SP 1	SUBSIDENCE PIT (SP) NUMBER (B DEPTH)
— > —	OPEN ADIT

#### LANDOWNER AND CONTACT

SECTION 13, T3S, R44E

TRUSLER, INC.  
W.W. BILL TRUSLER  
P.O. BOX 306  
ASHLAND, MT. 59003  
PHONE (406) 784-2337

#### NOTICE

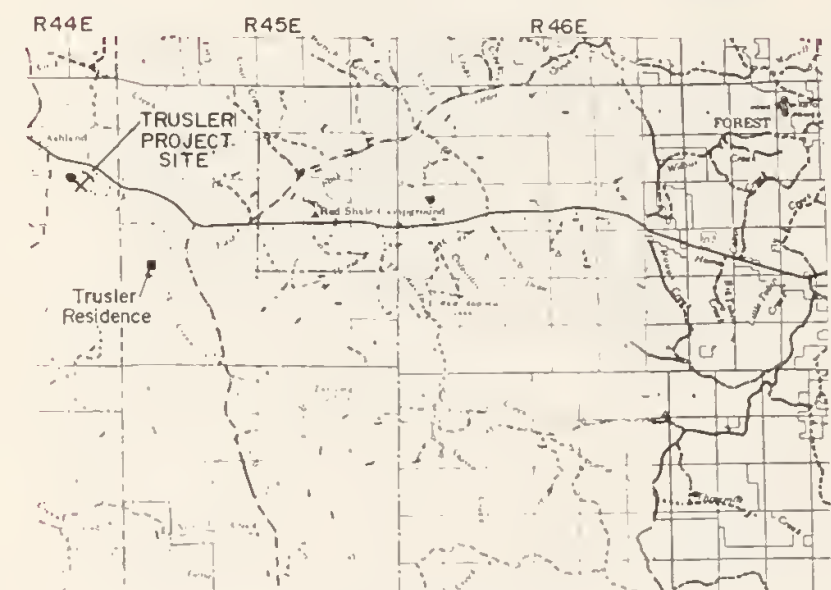
AN ABANDONED COAL MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.

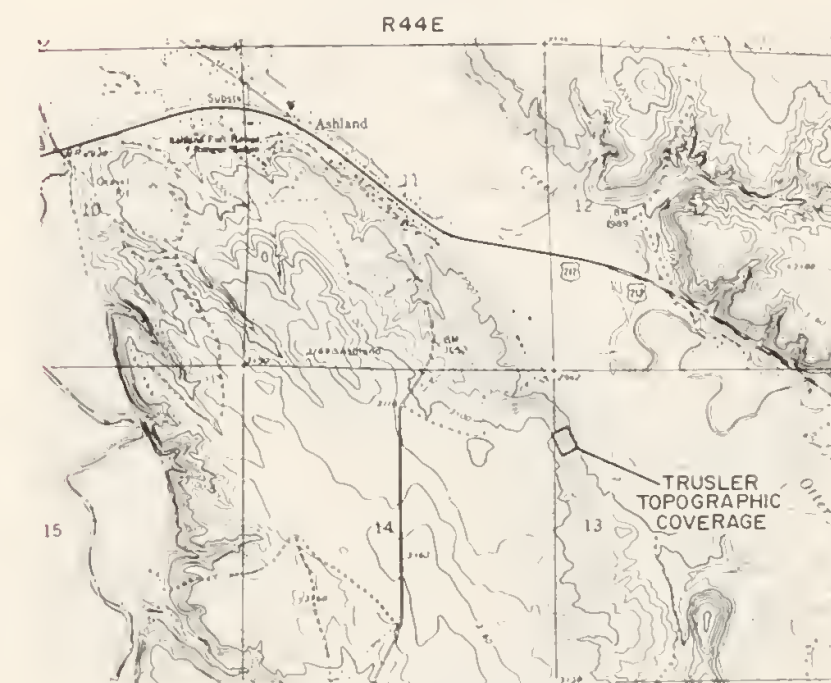


STATE LOCATION MAP

TRUSLER  
PROJECT  
SITE



VICINITY ACCESS MAP



SITE LOCATION MAP

#### SITE PLAN AND GENERAL LAYOUT

TRUSLER SITE  
SECTION 13, T3S, R44E  
ROSEBUD COUNTY, MONTANA

STATE OF MONTANA  
DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

SPECTRUM ENGINEERING  
Mining and Civil Engineers

3302 4th AVE NORTH  
BILLINGS, MONTANA

DATE	August 1990		
DRAWN BY:	DLO		
APPROVED BY	GWR		
	REVISIONS		
NO	DATE		
SHEET NO 8 of			

SHEET NO. 8 of 11







① PICTURE 1 IS AN AERIAL VIEW OF ADIT 1

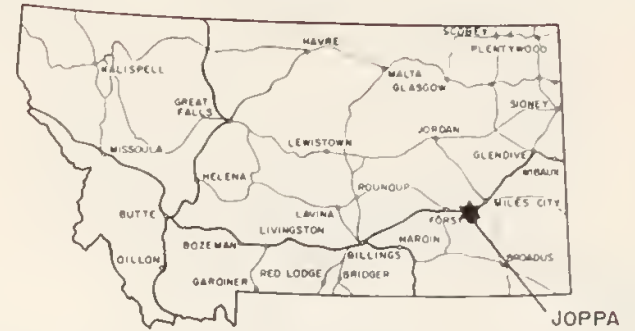
VEHICLE TRAVEL WILL BE LIMITED  
TO ROUTES FLAGGED ON-SITE BY  
THE PROJECT ENGINEER.



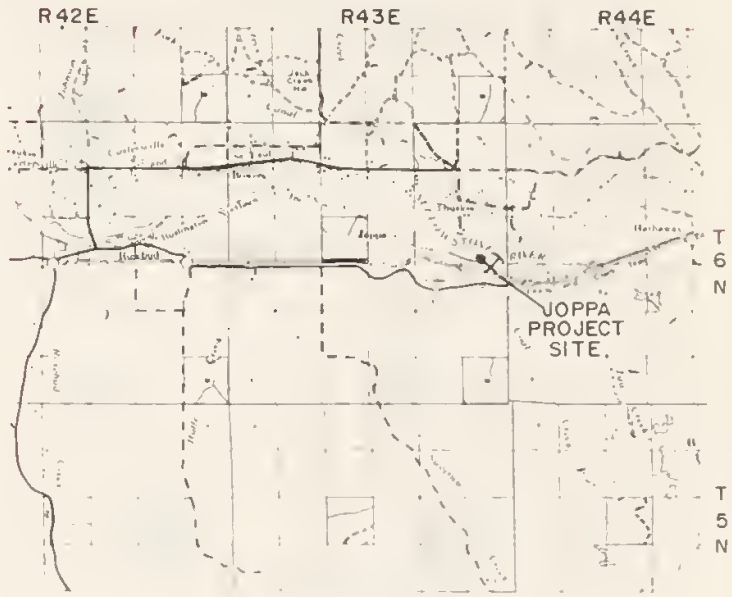
CLOSE ADIT BY BACKFILLING  
OR DRILLING AND BLASTING

①

CONSTRUCTION IS LIMITED TO  
THE AREA SHOWN ON THIS  
TOPOGRAPHIC MAP



STATE LOCATION MAP  
JOPPA PROJECT SITE



VICINITY ACCESS MAP



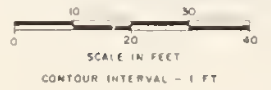
SITE LOCATION MAP

LANDOWNER AND CONTACT  
SECTION 24, T6N, R43E

HUNT OIL COMPANY  
FOUNTAIN PLACE  
1445 ROSS ST FIELD  
DALLAS, TX. 75202-2785  
PHONE (214) 978-8000

WORK DESCRIPTION

- CLDSE ADIT 1. THE CONTRACTOR MAY EMPLOY BACKFILLING  
DR DRILLING AND BLASTING.



Vertical Datum Based On Interpolation Of  
USGS 7 1/2' Quadrangle THURLOW, MT  
Topography Prepared From Ground Survey  
Conducted In 1989 By Spectrum Engineering  
Using A Plane Table And Alidade. This  
Topography Is Of Reconnaissance Class  
And Has Not Been Field Checked

ADDITIONAL INFORMATION PERTAINING TO THIS  
SITE MAY EXIST IN THE DEPARTMENT OF STATE  
LANDS' FILES OR AT SPECTRUM ENGINEERING'S  
OFFICE. THIS MATERIAL IS AVAILABLE FOR  
REVIEW BY ANY INTERESTED PARTY.

LEGEND

- 2500 — CONTOUR
- COAL SLACK
- ORAINAGE
- ① PICTURE NUMBER AND ORIENTATION
- SP 1 SUBSIDENCE PIT (SP) NUMBER (B DEPTH)
- OPEN ADIT

NDTICE

AN ABANDONED COAL MINE UNDERLIES THIS SITE.  
MANY POTENTIAL HAZARDS EXIST. THE EXTENT  
OF THESE HAZARDS IS NOT FULLY KNOWN.  
CONTRACTORS AND OTHER PERSONS WORKING AT  
THE SITE SHALL APPRISE THEMSELVES OF THE  
CONDITDINS AND TAKE WHATEVER STEPS ARE  
DEEMED NECESSARY TO INSURE SAFETY WHILE  
PERFORMING THEIR DUTIES.

SITE PLAN AND GENERAL LAYOUT	
JOPPA SITE	
SECTION 24, T6N, R43E	
ROSEBUD COUNTY, MONTANA	
STATE OF MONTANA DEPARTMENT OF STATE LANDS ABANDONEED MINE RECLAMATION BUREAU, RECLAMATION DIVISION	
SPECTRUM ENGINEERING Mining and Civil Engineers	
3302 4TH AVE NORTH BILLINGS, MONTANA	
DATE	AUGUST 1990
DRAWN BY	DLO
APPROVED BY	GWR
NO	REVISIONS
DATE	BY
SHEET NO 9 of 11	











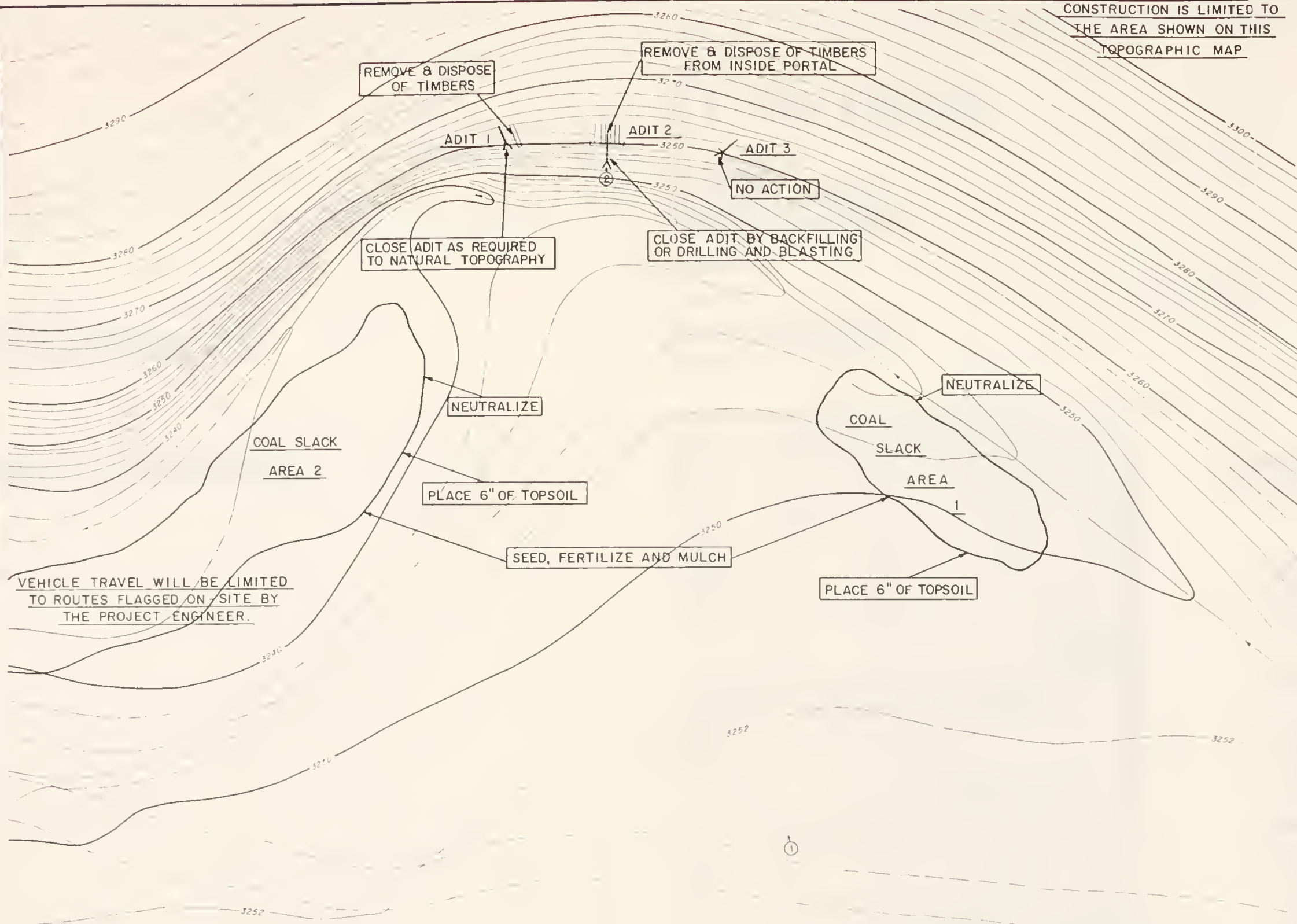


① PICTURE 1 SHOWS AN AERIAL VIEW OF THE MCKAY MINE SITE



② PICTURE 2 SHOWS ADIT 2

CAUTION: EXPLOSIVES MAY BE PRESENT AT THE SITE. IF SO, CONSULT THE OWNER'S REPRESENTATIVE FOR THE PROPER PROCEDURE TO FOLLOW.



#### WORK DESCRIPTION

- REMOVE MINE TIMBERS FROM ADIT 1.
- REMOVE THE DOOR, DOOR FRAME, AND TIMBERS FROM WITHIN ADIT 2. ALL PIECES OF HARDWARE FROM THE DOOR AND ALL ARTIFACTS FOUND INSIDE THE DOOR WILL BE GIVEN TO THE OWNER'S REPRESENTATIVE FOR HANDLING.
- REMOVE AND DISPOSE OF ALL DEBRIS.
- CLOSE ADITS 1 AND 2 BY BACKFILLING OR BY DRILLING AND BLASTING.
- NEUTRALIZE COAL SLACK AREAS.
- PLACE 6 INCHES OF TOPSOIL OVER THE NEUTRALIZED COAL SLACK AREA.
- PLACE TOPSOIL FROM THE STOCKPILE OVER THE BORROW AREA.
- REVEGETATE ALL DISTURBED AREAS.

#### WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
MINE WORKINGS	ADITS 1 AND 2	REMOVE DOOR, TIMBERS CLOSE ADITS	2 EACH
TOPSOIL	BORROW AREA NEUTRALIZED COAL SLACK STOCKPILES	STRIP AND STOCKPILE DIRECT PLACE PLACE FROM STOCKPILE	70 CY 200 CY 70 CY 340 CY
TOTAL TEST 1			
WATER	ROADS AND OTHER AREAS	DUST SUPPRESSION	2 D KGAL
COAL SLACK AREAS	ADJACENT TO CREEK	NEUTRALIZE AT 5 TONS PER ACRE PURE CaCO <sub>3</sub>	0.25 ACRES (1.25 TONSI)
DISTURBED AREAS	COAL SLACK AREA BORROW AREA	REVEGETATE REVEGETATE	0.25 ACRES 0.13 ACRES 0.38 ACRES
TOTAL TEST 1			
REVEGETATION OF 0.38 ACRES	FERTILIZER AT 92.5 LBS SEED AT 23 LBS PLS HAY MULCH AT 3,000 LBS	APPLY DRILL SEED SPREAD AND CRIMP	35.2 POUNDS 8.7 LB PLS 1,140 POUNDS

Vertical Datum Based On Interpolation Of  
USGS 7 1/2' Quadrangle, JIM TOWN, MT.  
Topography Prepared From Ground Survey  
Conducted In 1984 By Spectrum Engineering  
Using A Plane Table And Alidade. This  
Topography Is Of Reconnaissance Class  
And Has Not Been Field Checked.

ADDITIONAL INFORMATION PERTAINING TO THIS  
SITE MAY EXIST IN THE DEPARTMENT OF STATE  
LANDS' FILES OR AT SPECTRUM ENGINEERING'S  
OFFICE. THIS MATERIAL IS AVAILABLE FOR  
REVIEW BY ANY INTERESTED PARTY.

LANDOWNER AND CONTACT  
SECTION 34, T1S, R41E  
SECTION 3, T2S, R41E

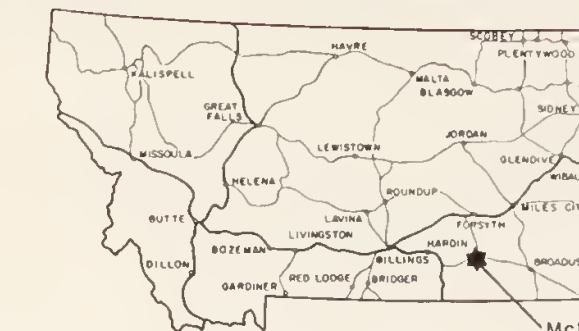
PEABODY DEVELOPMENT CO.  
ATTN: VIC GARBER  
P.O. BOX 706  
DOUGLAS, WY. 82633  
PHONE (307) 358-6803

#### LEGEND

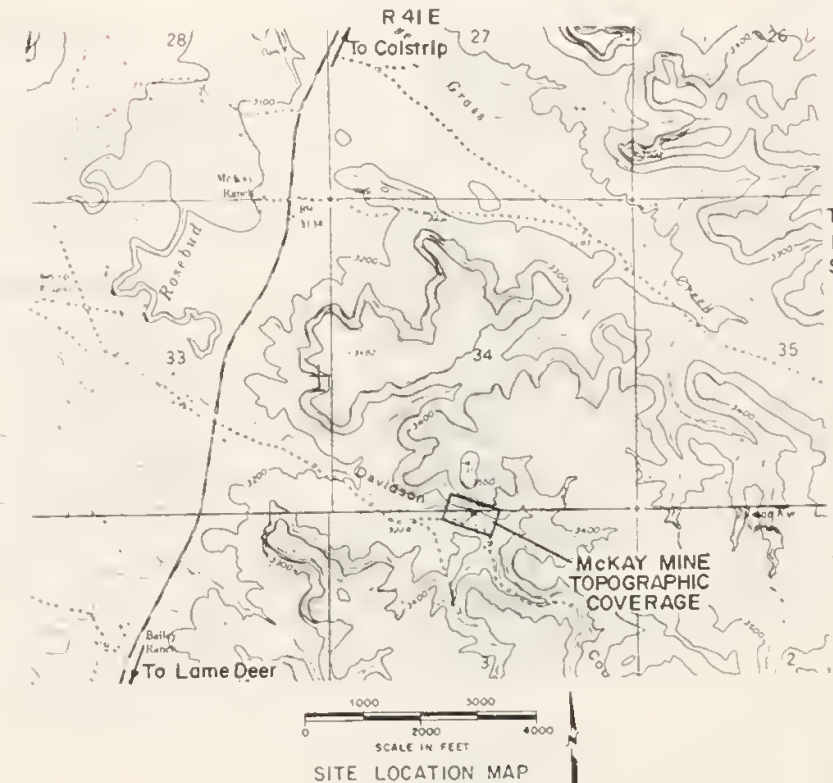
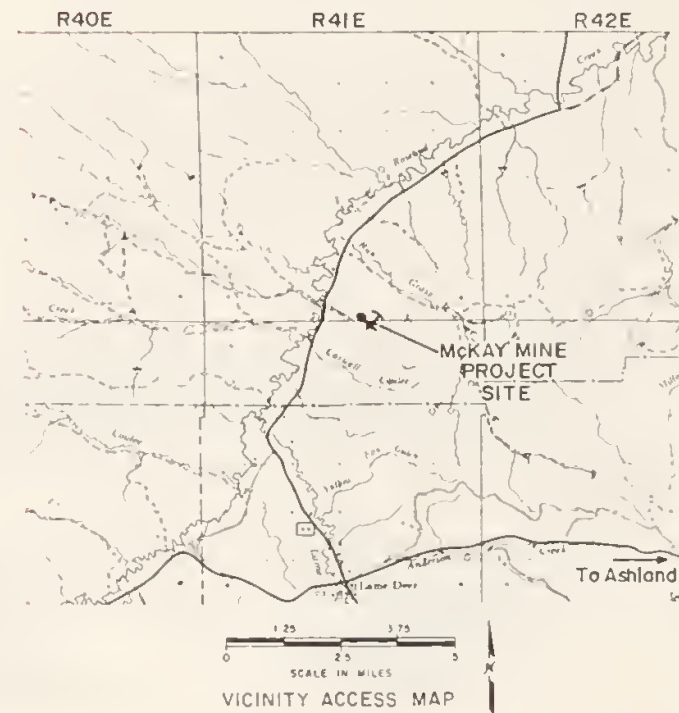
- 3250 — CONTOUR  
○ COAL SLACK  
— — — DRAINAGE  
① PICTURE NUMBER AND ORIENTATION  
SP1 SUBSIDIANCE PIT (SP) NUMBER (B DEPTH)  
— > — OPEN ADIT

#### NOTICE

AN ABANDONED COAL MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.



STATE LOCATION MAP  
MCKAY MINE PROJECT SITE



#### SITE PLAN AND GENERAL LAYOUT

MCKAY MINE SITE  
SECTION 34, T1S, R41E  
SECTION 3, T2S, R41E  
ROSEBUD COUNTY, MONTANA

STATE OF MONTANA  
DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

SPECTRUM ENGINEERING  
Mining and Civil Engineers

3302 4th AVE NORTH  
BILLINGS, MONTANA

DATE August 1990  
DRAWN BY: OLO  
APPROVED BY: GWR  
REVISIONS  
NO. DATE BY  
SHEET NO 11 of 11







# **ATTACHMENT 6**

## **AS-BUILT DRAWINGS**





# SOUTHEAST PROJECT

LOCATED IN  
CUSTER, POWDER RIVER, ROSEBUD,  
AND TREASURE COUNTIES, MONTANA

DSL/ AMRB 90-018

PREPARED FOR:

MONTANA DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU

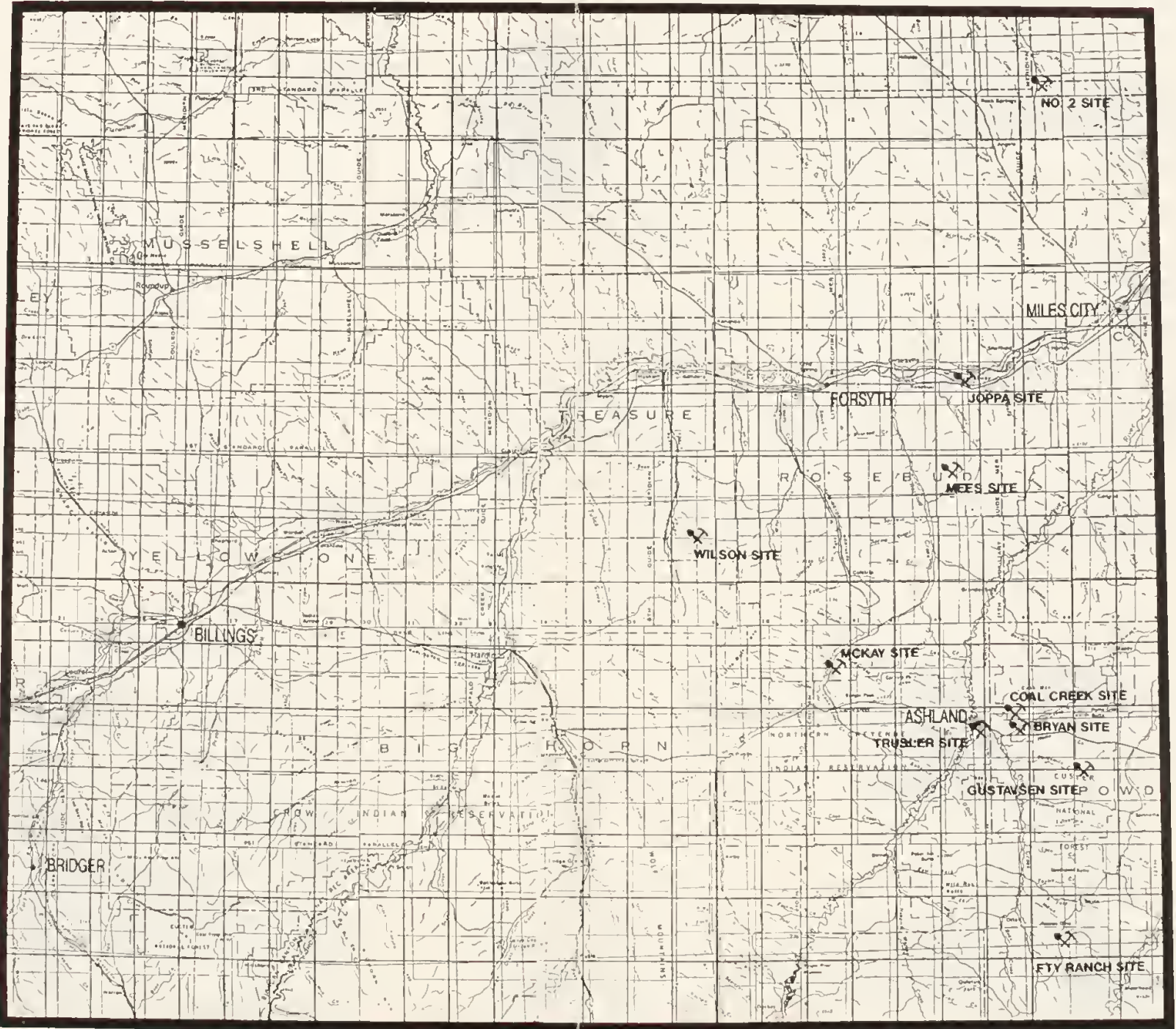
## INDEX

DESCRIPTION	SHEET NO.
COVER SHEET	1
WILSON SITE PLAN	2
NO. 2 SITE PLAN	3
FTY RANCH SITE PLAN	4
BRYAN SITE PLAN	5
COAL CREEK SITE PLAN	6
GUSTAVSEN SITE PLAN	7
TRUSLER SITE PLAN	8
JOPPA SITE PLAN	9
MEES SITE PLAN	10
McKAY SITE PLAN	11

REDUCED PRINTS APPROX. 1/2 ORIGINAL SCALE

## LANDOWNERS AND CONTACT PERSONS

<b>TREASURE COUNTY</b>	<b>COAL CREEK</b>
<b>WILSON SITE</b>	Glacier Park Company
Lee Wilson	Attn: Jim Bishop
P.O. Box 895	P.O. Box 579
Hysham, MT. 59083	Miles City MT. 59301
Phone 406/342-5303	Phone: 406/232-1274
<b>CUSTER COUNTY</b>	<b>GUSTAVSEN</b>
<b>NO. 2</b>	Trusler, Inc.
Glacier Park Company	W.W. Bill Trusler
James L. Bishop	P.O. Box 306
Director Land Management	Ashland MT. 59003
519 Main Street	Phone: 406/784-2337
P.O. Box 579	
Miles City, MT 59301	
406/232-1274	
<b>POWDER RIVER COUNTY</b>	<b>ROSEBUD COUNTY</b>
<b>FTY RANCH</b>	<b>TRUSLER</b>
Lawrence Vonkee	Trusler, Inc.
FTY Ranch, Box 6288	W.W. Bill Trusler
Sheridan, Wy. 82801	P.O. Box 306
Office 307/674-7451	Ashland MT. 59003
Home 307/672-5084	Phone: 406/784-2337
Ranch House 406/784-2721	
Lynn McIntyre (Ranch Manager)	
406/784-2728	
<b>BRYAN MINE</b>	<b>JOPPA</b>
Custer National Forest	Hunt Oil Co.
Billings, MT.	Fountain Place
c/o Ashland Ranger district	1445 Ross at Field
Custer National Forest	Dallas, Tx. 75202-2785
John MacIsor, District Ranger	Phone: 214/978-8000
P.O. Box 168	
Ashland, MT 59003	
406/784-2344	
	<b>MEES</b>
	Lavon Mees Trust
	c/o Mark Mees
	Mees Hereford Ranch
	Rosebud, MT 59347
	406/347-5413
	<b>MCKAY</b>
	Peabody Development Co.
	Attn: Vic Garber
	P.O. Box 706
	Douglas, WY 82633
	307/358-6803



AREA MAP

0 6 12 18 24  
SCALE IN MILES

PREPARED BY:  
**SPECTRUM ENGINEERING**  
Mining and Civil Engineers

3302 4th AVE. NORTH  
BILLINGS, MONTANA







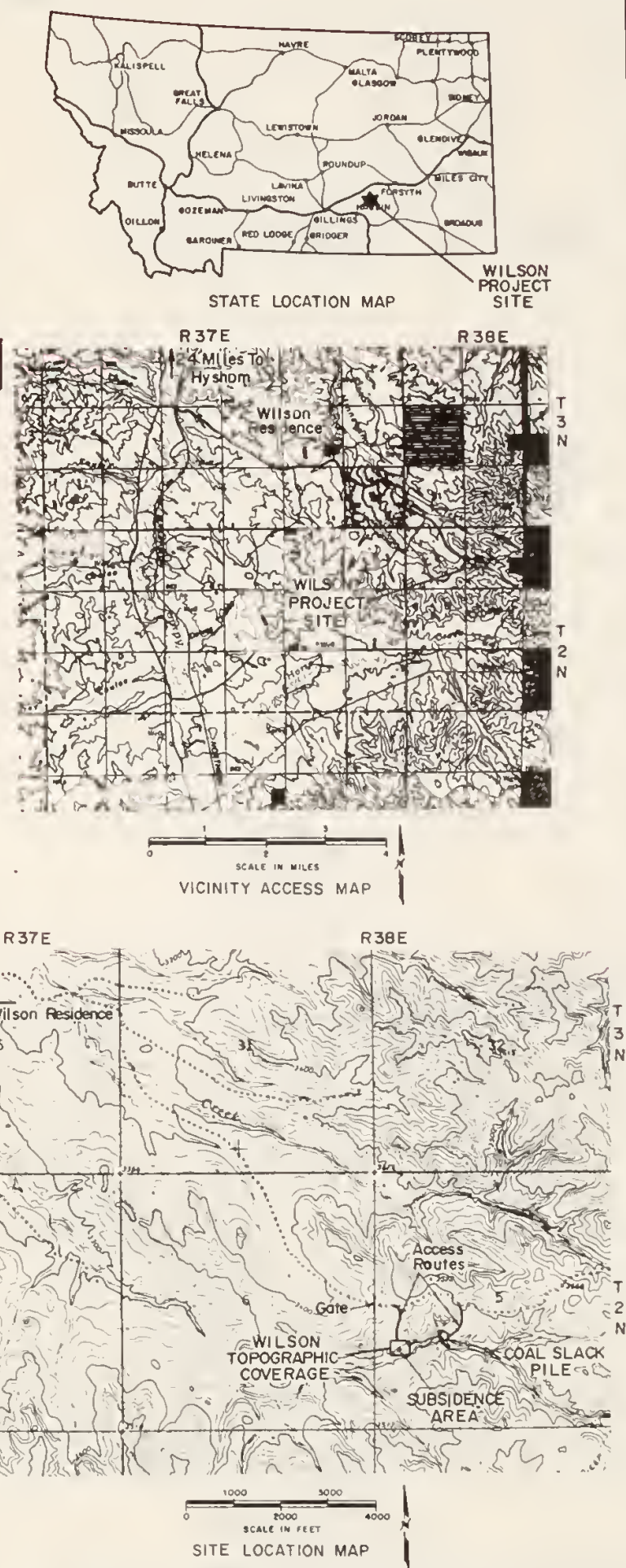
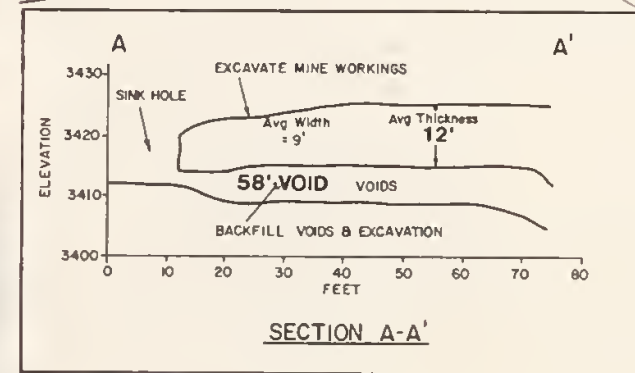
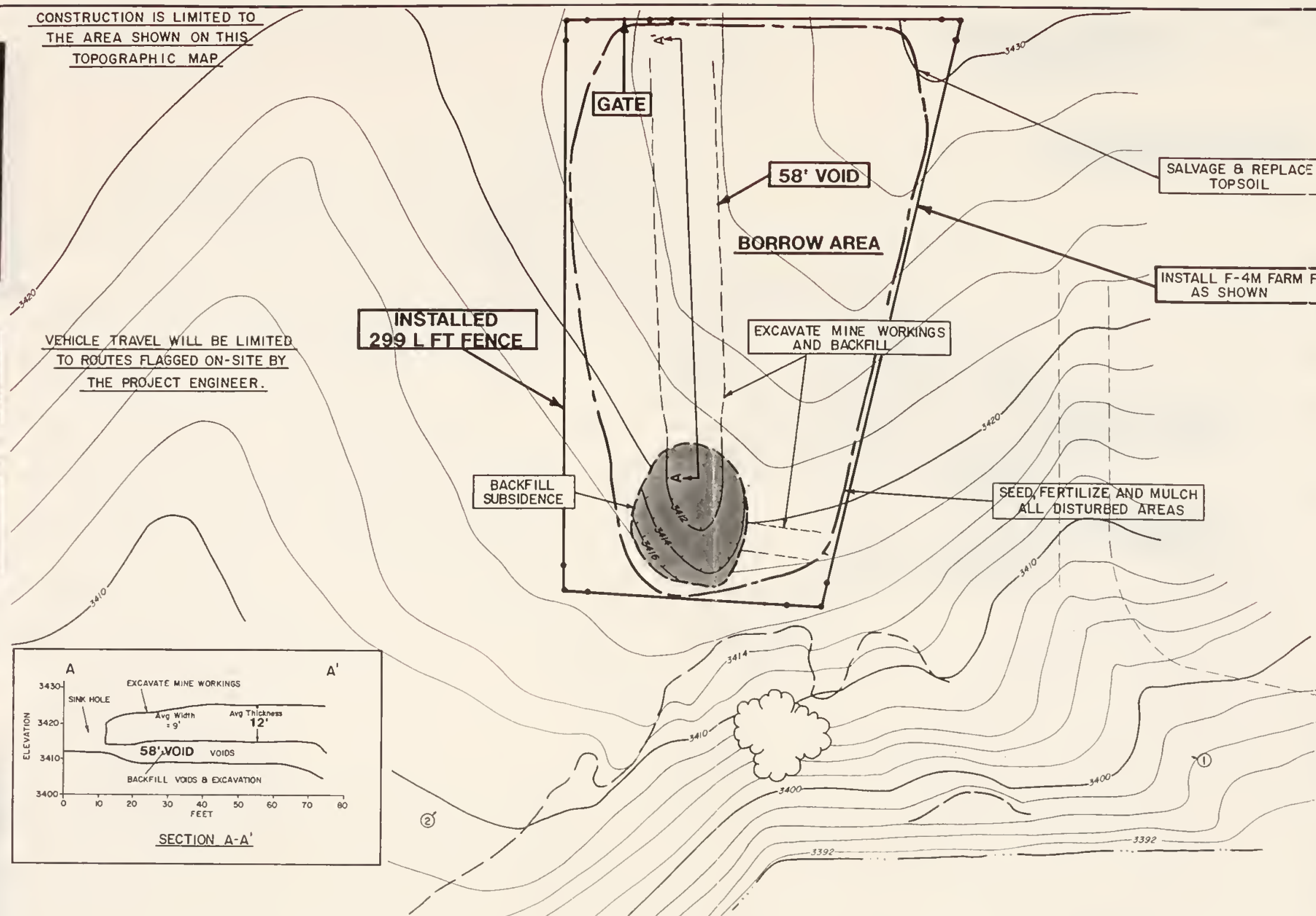
① PICTURE 1 SHOWS THE SUBSIDENCE LOOKING DOWNSTREAM FROM THE WEST.



② PICTURE 2 SHOWS THE SUBSIDENCE LOOKING UPSTREAM FROM THE EAST.



③ PICTURE 3 SHOWS THE COAL SLACK PILE LOCATED UP THE DRAINAGE FROM THE SUBSIDENCE. THIS PILE IS TO BE BURIED IN PLACE AND REVEGETATED.



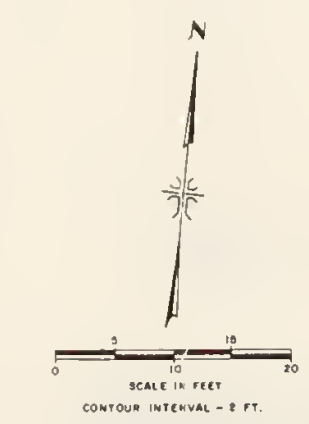
WORK DESCRIPTION

WORK SUMMARY TABLE			
ITEM	DESCRIPTION	ACTION	QUANTITY
TOPSOIL	SUBSIDENCES/BORROW AREAS	STRIP AND STOCKPILE	100 CY
	FROM BORROW AREA	DIRECT PLACE	90 CY
TOTAL (EST.)	STOCKPILES	PLACE FROM STOCKPILE	100 CY
			290 CY
SUBSIDENCE	SEE TOPOGRAPHIC MAP	BACKFILL	80 CY
WATER	BACKFILL ROADS AND OTHER AREAS	FOR COMPACTION DUST SUPPRESSION	5.0 KGAL
			2.0 KGAL
			7.0 KGAL
MINE WORKINGS	SEE MAP	EXCAVATE	400 CY
		BACKFILL	400 CY
		BACKFILL WITH BORROW	100 CY
			900 CY
COAL SLACK AREA	REGRADED COAL SLACK PILE	REGRADE IN PLACE	60 CY
		NEUTRALIZE AT 5 TONS PER ACRE PURE CaCO <sub>3</sub>	0.10 ACRES (0.5 TONS)
DISTURBED AREAS	COAL SLACK AREA	REVEGETATE	0.10 ACRES
	SUBSIDENCE AND BORROW AREAS	REVEGETATE	0.19 ACRES
		REVEGETATE	0.25 ACRES
			0.54 ACRES
TOTAL (EST.)			
REVEGETATION OF 0.54 ACRES	FERTILIZER AT 92.5 LBS SEE AT 23 LBS PLS HAY MULCH AT 3,000 LBS	APPLY ORILL SEED SPREAD AND CRIMP	50 POUNDS
			12.4 LB PLS
			1,620 POUNDS
FENCE	TYPE F-4M FARM FENCE SINGLE PANELS	INSTALL	530 L FT
	DOUBLE PANELS	INSTALL	2 EACH
	TYPE F-4 FARM FENCE GATES	INSTALL	8 EACH
			9 EACH
			32 L FT

- SUBSIDENCE AREA**
- STRIP AND STOCKPILE 4 INCHES OF TOPSOIL FROM THE BORROW AREA, AREAS OVER MINE VOIDS, AND THE SUBSIDENCE PIT.
  - EXCAVATE THE UNDERGROUND MINE VOIDS, AS SHOWN.
  - BACKFILL THE MINE VOIDS, EXCAVATIONS, AND SUBSIDENCE. USE STOCKPILED AND BORROW MATERIAL.
  - PLACE TOPSOIL FROM THE STOCKPILES OVER THE SUBSIDENCE AND BORROW AREAS.
  - REVEGETATE ALL DISTURBED AREAS
  - INSTALL F-4M FARM FENCE, SINGLE AND DOUBLE PANELS, AND GATE, AS SHOWN.
- COAL SLACK PILE**
- STRIP AND STOCKPILE 4 INCHES OF TOPSOIL FROM THE BORROW AND COAL SLACK BURIAL AREAS.
  - REGRADE THE COAL SLACK IN PLACE BLENDING THE CONTOURS IN WITH SURROUNDING TOPOGRAPHY.
  - NEUTRALIZE THE COAL SLACK AREA.
  - PLACE TOPSOIL FROM THE BORROW AREA AND STOCKPILE OVER THE COAL SLACK AREA.
  - REVEGETATE ALL DISTURBED AREAS.
  - INSTALL F-4M FARM FENCE, SINGLE AND DOUBLE PANELS, AND GATE

LANDOWNER AND CONTACT

LEE WILSON  
P.O. BOX 895  
HYSHAM, MT. 59083  
PHONE (406) 342-5303



- LEGEND**
- 3410 — CONTOUR
  - COAL SLACK
  - DRAINAGE
  - ① PICTURE NUMBER AND ORIENTATION
  - SP1 SUBSIDENCE PIT (SP) NUMBER (B DEPTH)
  - OPEN ADIT

NOTICE

AN ABANDONED COAL MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.

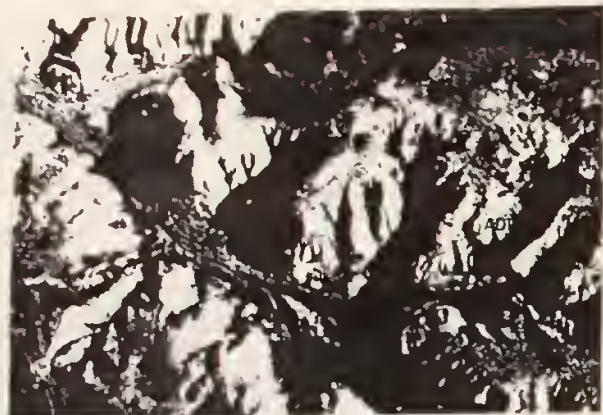
ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.

AS-BUILT DRAWING	SITE PLAN AND GENERAL LAYOUT	
	WILSON SITE	
	SECTION 5, T2N, R38E	
	TREASURE COUNTY, MONTANA	
	STATE OF MONTANA	
	DEPARTMENT OF STATE LANDS	
	ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION	
	SPECTRUM ENGINEERING	
	Mining and Civil Engineers	
	3302 4th AVE NORTH BILLINGS, MONTANA	
DATE August 1990		
DRAWN BY: DLO		
APPROVED BY: GWR		
REVISIONS		
NO. DATE BY		
SHEET NO. 2 of 11		





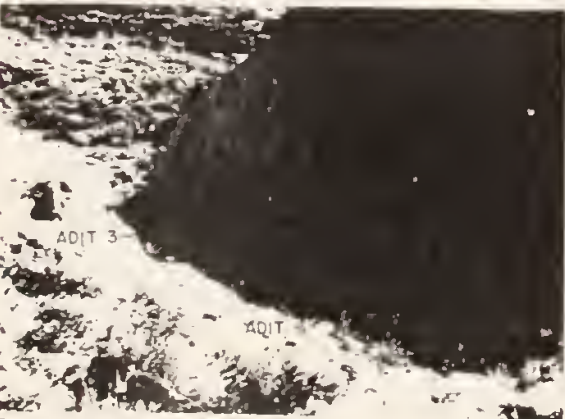




① PICTURE 1 SHOWS AN AERIAL VIEW OF THE FIVE ADITS.



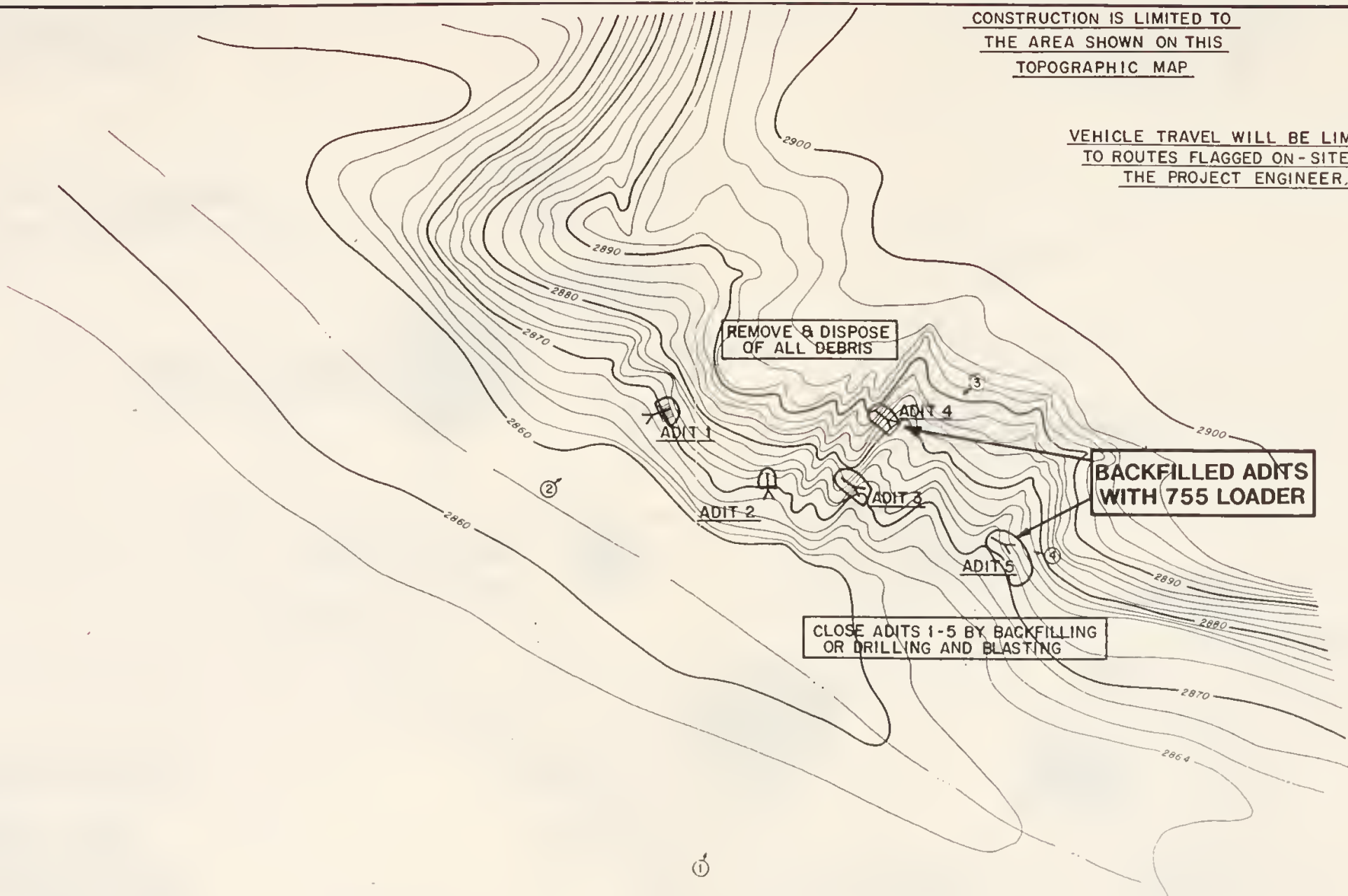
② PICTURE 2 SHOWS ADIT 1. THE ADIT IS OPEN AND DEBRIS IS PRESENT.



③ PICTURE 3 SHOWS ADITS 3 AND 4.



④ PICTURE 4 SHOWS ADIT 5.



CONSTRUCTION IS LIMITED TO  
THE AREA SHOWN ON THIS  
TOPOGRAPHIC MAP

VEHICLE TRAVEL WILL BE LIMITED  
TO ROUTES FLAGGED ON-SITE BY  
THE PROJECT ENGINEER.

REMOVE & DISPOSE  
OF ALL DEBRIS

BACKFILLED ADITS  
WITH 755 LOADER

CLOSE ADITS 1-5 BY BACKFILLING  
OR DRILLING AND BLASTING

LEGEND

- 2870— CONTOUR
- COAL SLACK
- DRAINAGE
- ① PICTURE NUMBER AND ORIENTATION
- SP 1 SUBSIDIARY PIT (SP) NUMBER (8 DEPTH)
- OPEN ADIT

0 25 50 75 100  
SCALE IN FEET  
CONTOUR INTERVAL - 2 FT

Vertical Datum Based On Interpolation Of  
USGS 7 1/2' Quadrangle, CROW ROCK SE, MT.  
Topography Prepared From Ground Survey  
Conducted In 1989 By Spectrum Engineering  
Using A Plane Table And Alidade. This  
Topography Is Of Reconnaissance Class  
And Has Not Been Field Checked

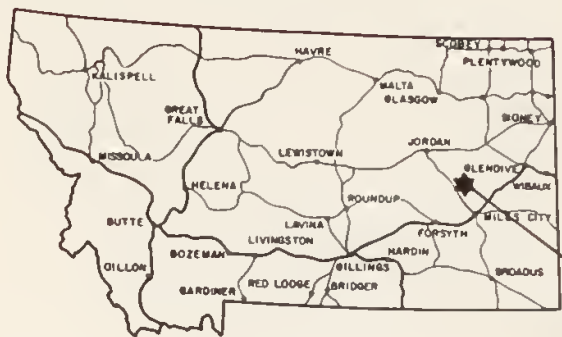
LANDOWNER AND CONTACT  
SECTION 29, T13N, R45E

GLACIER PARK COMPANY  
70 JAMES L. BISHOP  
519 MAIN STREET  
P.O. BOX 579  
MILES CITY, MT. 59301  
PHONE (406) 232-1274

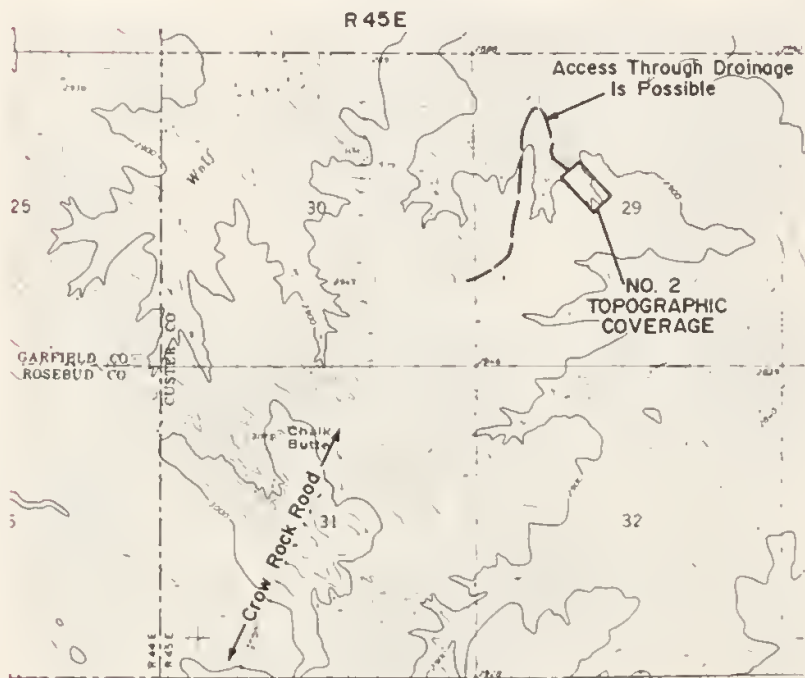
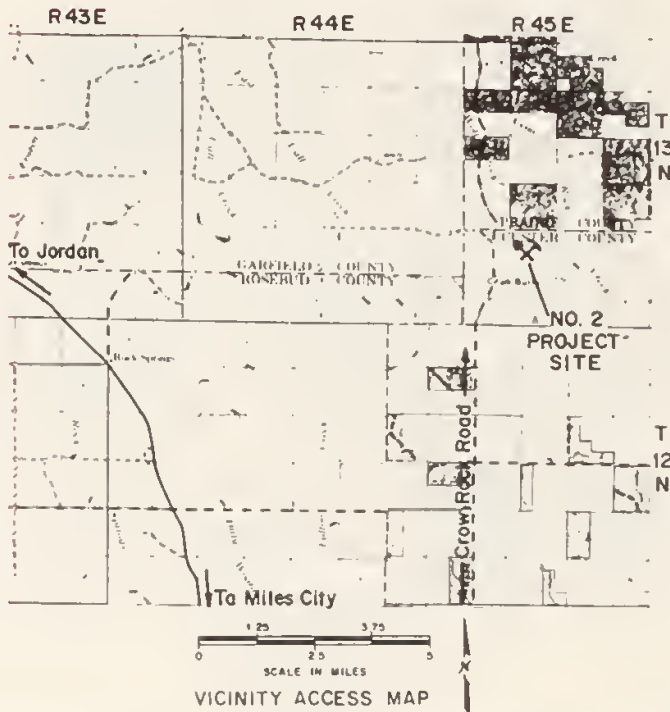
NOTICE

AN ABANDONED COAL MINE UNDERLIES THIS SITE.  
MANY POTENTIAL HAZARDS EXIST. THE EXTENT  
OF THESE HAZARDS IS NOT FULLY KNOWN.  
CONTRACTORS AND OTHER PERSONS WORKING AT  
THE SITE SHALL APPRISE THEMSELVES OF THE  
CONDITIONS AND TAKE WHATEVER STEPS ARE  
DEEMED NECESSARY TO INSURE SAFETY WHILE  
PERFORMING THEIR DUTIES.

ADDITIONAL INFORMATION PERTAINING TO THIS  
SITE MAY EXIST IN THE DEPARTMENT OF STATE  
LANDS' FILES OR AT SPECTRUM ENGINEERING'S  
OFFICE. THIS MATERIAL IS AVAILABLE FOR  
REVIEW BY ANY INTERESTED PARTY.



STATE LOCATION MAP



0 1000 2000 3000 4000  
SCALE IN FEET  
SITE LOCATION MAP

SITE PLAN AND GENERAL LAYOUT

NO. 2 SITE  
SECTION 29, T13N, R45E  
CUSTER COUNTY, MONTANA

STATE OF MONTANA  
DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

SPECTRUM ENGINEERING  
Mining and Civil Engineers

3302 4th AVE NORTH  
BILLINGS, MONTANA

DATE August 1990  
DRAWN BY: DLO  
APPROVED BY: GWR  
REVISIONS  
NO. DATE BY  
SHEET NO. 3 of 11

AS-BUILT DRAWING



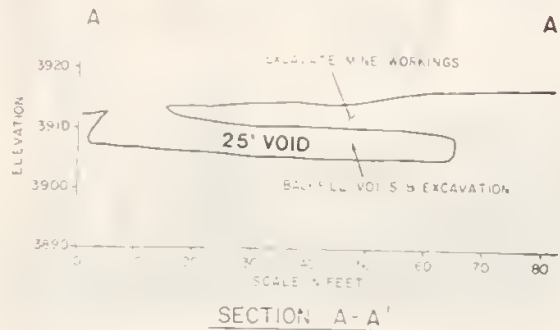




1 PICTURE 1 IS AN AERIAL VIEW OF THE ADIT AND SUBSIDENCES.



2 PICTURE 2 SHOWS THE TIMBERS AND DEBRIS AT THE ADIT



LANDOWNER AND CONTACT  
SECTION 13, T 8 S, R 46 E

LAWRENCE YONKEE  
FTY RANCH, BOX 6288  
SHERIDAN, WYO. 82801  
PHONE: (307) 674-7451 (W)  
(307) 672-5084 (H)  
(406) 784-2721 (Ranch)  
LYNN McINTYRE (Ranch Manager)  
(406) 784-2728

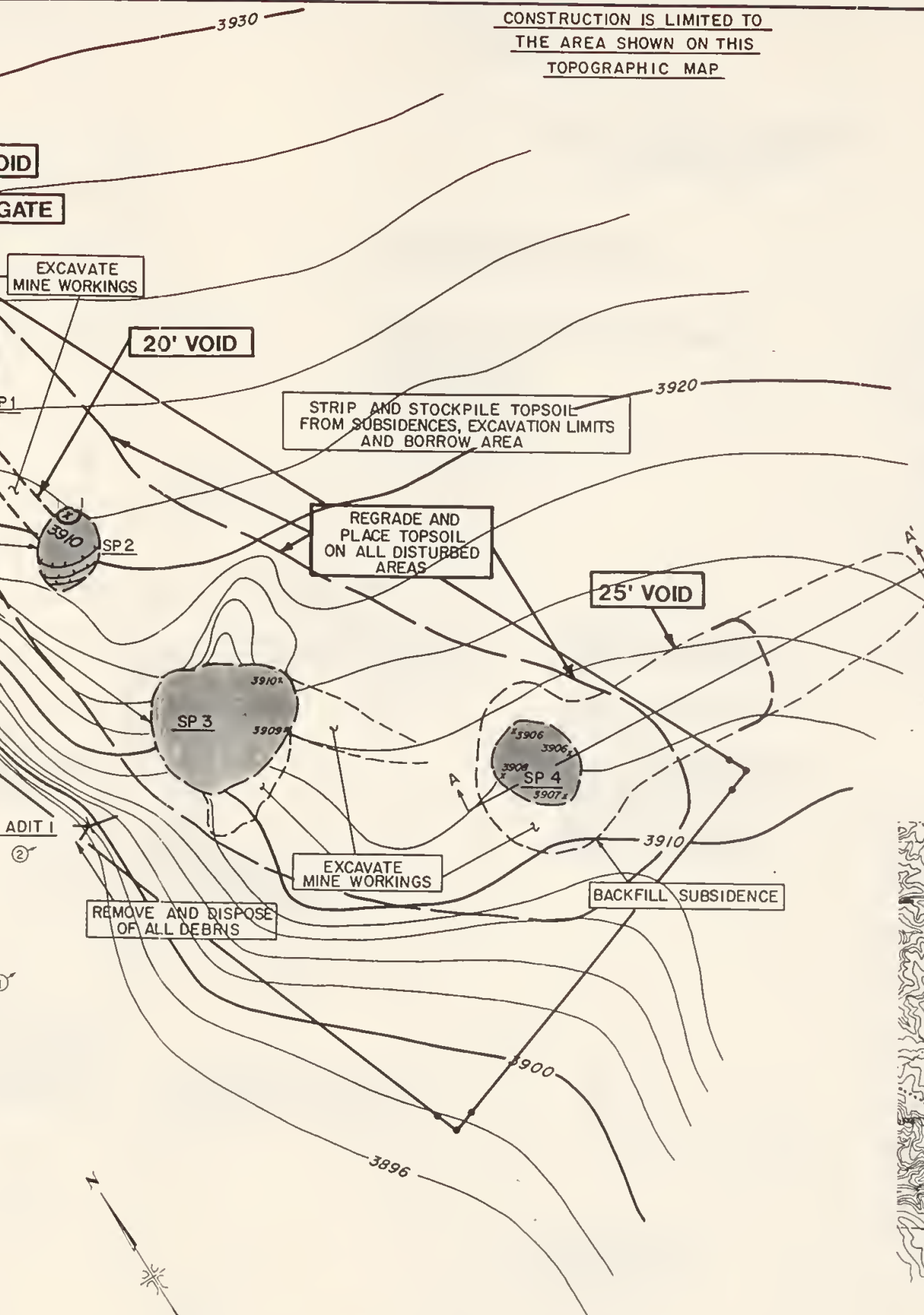
WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
TOPSOIL	SUBSIDENCES BORROW AREA	STRIP AND STOCKPILE	130 CY
	STOCKPILES	PLACE FROM STOCKPILE	130 CY
TOTAL (EST)			260 CY
SUBSIDENCES			
SP 1	SEE TOPOGRAPHIC MAP	BACKFILL	25 CY
SP 2	SEE TOPOGRAPHIC MAP	BACKFILL	20 CY
SP 3	SEE TOPOGRAPHIC MAP	BACKFILL	55 CY
SP 4	SEE TOPOGRAPHIC MAP	BACKFILL	50 CY
TOTAL (EST)			150 CY
WATER	FOR FILL	FOR COMPACTION	5.5 KGAL
	ROADS AND OTHER AREAS	DUST SUPPRESSION	2.5 KGAL
			8.0 KGAL
MINE WORKINGS	SEE MAP	EXCAVATE	290 CY
		BACKFILL	290 CY
		BACKFILL WITH BORROW	110 CY
			690 CY
DISTURBED AREAS	SUBSIDENCE AREA	REVEGETATE	0.10 ACRES
	BORROW AREA	REVEGETATE	0.15 ACRES
TOTAL (EST)			0.25 ACRES
REVEGETATION OF 0.25 ACRES	FERTILIZER AT 92.5 LBS SEED AT 23 LBS PLS MAY MULCH AT 3,000 LBS	APPLY DRILL SEED SPREAD AND CRIMP	23 POUNDS 5.8 LB PLS 750 POUNDS
FENCE	TYPE 4 FARM FENCE POSTS AND RAILS TYPE 4 FARM FENCE	INSTALL INSTALL INSTALL INSTALL	400 L FT 2 EACH 6 EACH 16 L FT

AS-BUILT

WORK DESCRIPTION

- REMOVE AND DISPOSE OF ALL DEBRIS.
- STRIP AND STOCKPILE 4 INCHES OF TOPSOIL FROM THE BORROW AREA, AREAS OVER MINE VOIDS, AND THE SUBSIDENCE PITS.
- EXCAVATE THE UNDERGROUND MINE VOIDS.
- BACKFILL THE MINE VOIDS, EXCAVATIONS, AND SUBSIDENCE. USE STOCKPILED AND BORROW MATERIAL.
- PLACE TOPSOIL FROM THE STOCKPILES OVER THE SUBSIDENCE AND BORROW AREAS.
- REVEGETATE ALL DISTURBED AREAS.
- INSTALL F-4M FARM FENCE, SINGLE AND DOUBLE PANELS, AND GATE, AS DIRECTED.



Vertical Datum Based On Interpolation Of  
USGS 7 1/2' Quadrangle: REANUS CONE, MT.  
Topography Prepared From Ground Survey  
Conducted In 1989 By Spectrum Engineering  
Using A Plans Table And Altimeters. This  
Topography Is Of Reconnaissance Class  
And Has Not Been Field Checked.

ADDITIONAL INFORMATION PERTAINING TO THIS  
SITE MAY EXIST IN THE DEPARTMENT OF STATE  
LANDS' FILES OR AT SPECTRUM ENGINEERING'S  
OFFICE THIS MATERIAL IS AVAILABLE FOR  
REVIEW BY ANY INTERESTED PARTY

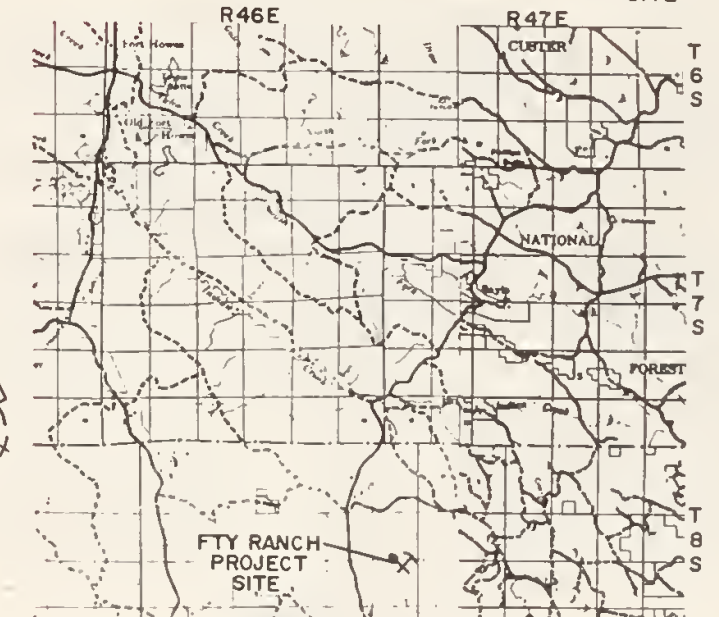
- LEGEND
- 3900 CONTOUR
  - COAL SLACK
  - DRAINAGE
  - PICTURE NUMBER AND ORIENTATION
  - SUBSIDENCE PIT (SP) NUMBER (B DEPTH)
  - OPEN ADIT

NOTICE

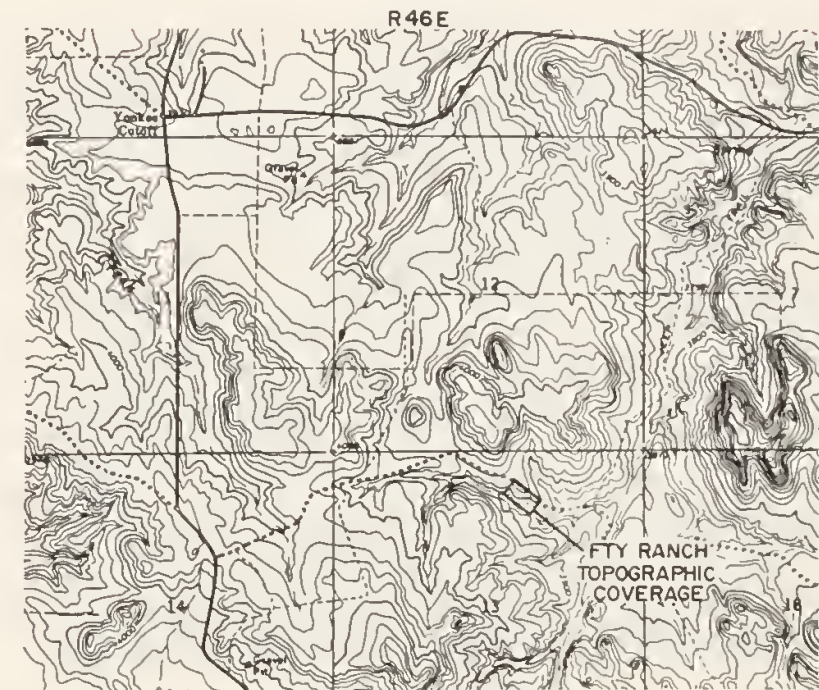
AN ABANDONED COAL MINE UNDERLIES THIS SITE.  
MANY POTENTIAL HAZARDS EXIST. THE EXTENT  
OF THESE HAZARDS IS NOT FULLY KNOWN.  
CONTRACTORS AND OTHER PERSONS WORKING AT  
THE SITE SHALL APPRISE THEMSELVES OF THE  
CONDITIONS AND TAKE WHATEVER STEPS ARE  
DEEMED NECESSARY TO INSURE SAFETY WHILE  
PERFORMING THEIR DUTIES.



STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

AS-BUILT DRAWING

SITE PLAN AND GENERAL LAYOUT

FTY RANCH SITE  
SECTION 13, T 8 S, R 46 E  
POWDER RIVER COUNTY, MONTANA

STATE OF MONTANA  
DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

SPECTRUM ENGINEERING  
Mining and Civil Engineers  
3302 4th AVE NORTH  
BILLINGS, MONTANA

DATE August 1990  
DRAWN BY: DLO  
APPROVED BY: GWR  
REVISIONS  
NO. DATE BY  
SHEET NO 4 of 11









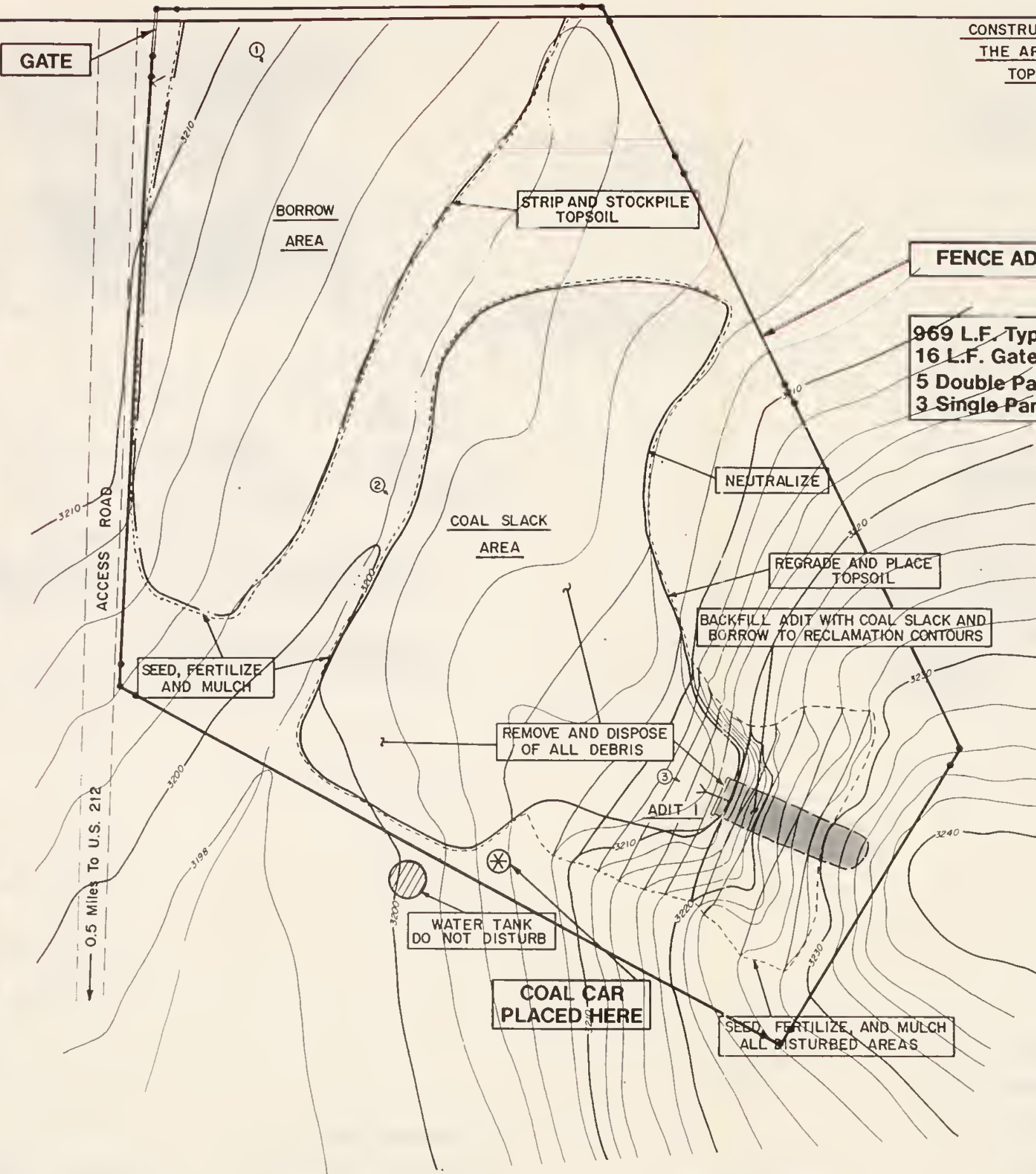
1 PICTURE 1 IS AN AERIAL VIEW OF THE BRYAN SITE



2 PICTURE 2 SHOWS THE ADIT, COAL SLACK AREA, AND DEBRIS



3 PICTURE 3 SHOWS THE PARTIALLY BLOCKED ADIT ENTRANCE.



CONSTRUCTION IS LIMITED TO  
THE AREA SHOWN ON THIS  
TOPOGRAPHIC MAP

VEHICLE TRAVEL WILL BE LIMITED  
TO ROUTES FLAGGED ON-SITE BY  
THE PROJECT ENGINEER.

FENCE ADDED TO SITE

969 L.F. Type F-4M Farm Fence  
16 L.F. Gate  
5 Double Panel  
3 Single Panel

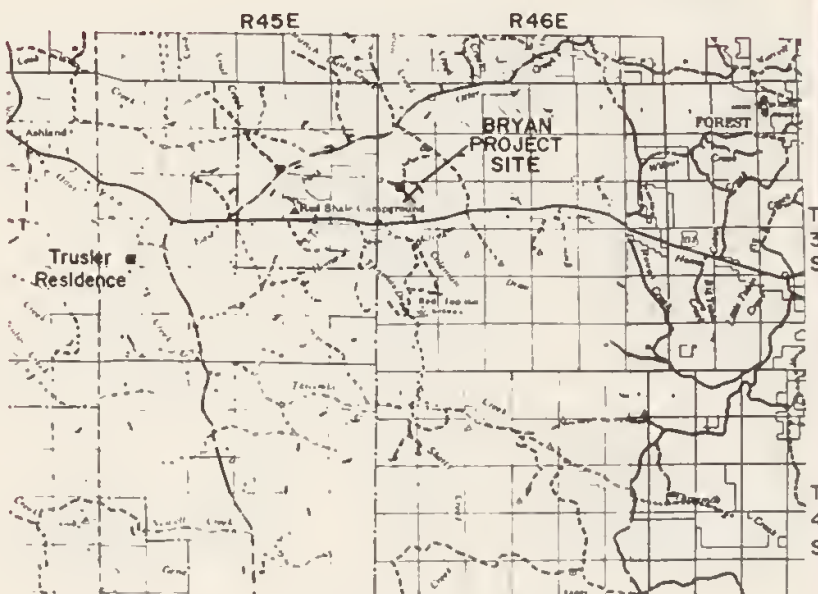
LANDOWNER AND CONTACT  
SECTION 1B, T3S, R46E

CUSTER NATIONAL FOREST  
BILLINGS, MT.

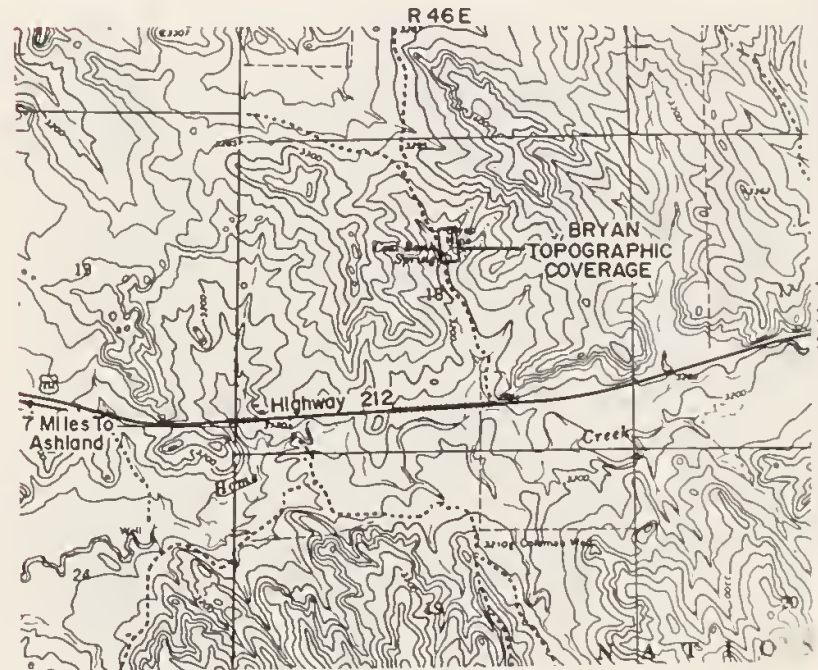
% ASHLAND RANGER DISTRICT  
CUSTER NATIONAL FOREST  
JOHN MACIVOR, DISTRICT RANGER  
P.O. BOX 16B  
ASHLAND, MT. 59003  
PHONE (406) 784-2344



STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

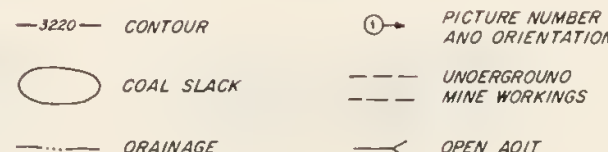
WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
TOPSOIL	BORROW AREA	STRIP AND STOCKPILE	210 CY
	COAL SLACK AND ADIT	DIRECT PLACE	170 CY
	BORROW AREA	PLACE FROM STOCKPILE	210 CY
TOTAL EST			590 CY
ADIT 1 AREA	SEE TOPOGRAPHIC MAP	BACKFILL W/COAL SLACK AND BORROW MATERIAL	470 CY
WATER	SUBSIDENCE BACKFILL ROADS AND OTHER AREAS	FDR COMPACTION DUST SUPPRESSION	6.5 KGAL
TOTAL EST			2.0 KGAL
COAL SLACK AREA	COAL SLACK AREA AND BACKFILLED ADIT AREA	NEUTRALIZE AT 5 TONS PER ACRE PURE CaCO <sub>3</sub>	0.27 ACRES (1.35 TONS)
DISTURBED AREAS	COAL SLACK & ADIT AREAS BORROW AREA	REVEGETATE	0.33 ACRES
TOTAL EST	ACCESS ROADS 112 WIDTH	REVEGETATE	0.40 ACRES
		REVEGETATE	0.02 ACRES
			0.75 ACRES
REVEGETATION OF 0.18 ACRE	FERTILIZER AT 92.5 LBS SFD AT 23 LBS PLS MAY MULCH AT 3000 LBS	APPLY DRILL SEED SPREAD AND CRIMP	69 POUNDS
			17.3 LB PLS
			2,250 POUNDS

WORK DESCRIPTION

- REMOVE TIMBERS AND STRUCTURES FROM THE ADIT
- REMOVE AND DISPOSE OF ALL DEBRIS.
- CLOSE THE ADIT USING AN EARTH OR ROCK PLUG.
- STRIP AND STOCKPILE TOPSOIL FROM THE BORROW AREA.
- BACKFILL ADIT 1 WITH EXCESS COAL SLACK AND BORROW MATERIAL TO RECLAMATION CONTOURS.
- REGRADE THE COAL SLACK AREA SMOOTH.
- NEUTRALIZE THE COAL SLACK AREA.
- PLACE 6 INCHES OF TOPSOIL MATERIAL FROM THE BORROW AREA OVER THE COAL SLACK AND ADIT AREAS.
- PLACE TOPSOIL FROM THE STOCKPILE OVER THE BORROW AREA.
- REVEGETATE ALL DISTURBED AREAS.

LEGEND



Vertical Datum Based On Interpolation Of USGS 7 1/2' Quadrangle COLEMAN CRAW, MT. Topography Prepared From Ground Survey Conducted In 1989 By Spectrum Engineering Using A Plane Table And Alidade. This Topography is Of Reconnaissance Class And Has Not Been Field Checked.

NOTICE

AN ABANDONED COAL MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY

AS-BUILT DRAWING

SITE PLAN AND GENERAL LAYOUT

BRYAN SITE  
SECTION 1B, T3S, R46E  
POWDER RIVER COUNTY, MONTANA

STATE OF MONTANA  
DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

SPECTRUM ENGINEERING  
Mining and Civil Engineers

3302 4th AVE NORTH  
BILLINGS, MONTANA

DATE	August 1990
DRAWN BY	DLO
APPROVED BY	GWR
NO.	
REVISIONS	
DATE	
BY	
SHEET NO	5 of 11







① PICTURE 1 SHOWS SUBSIDENCE PIT 1.

② PICTURE 2 SHOWS SP-2

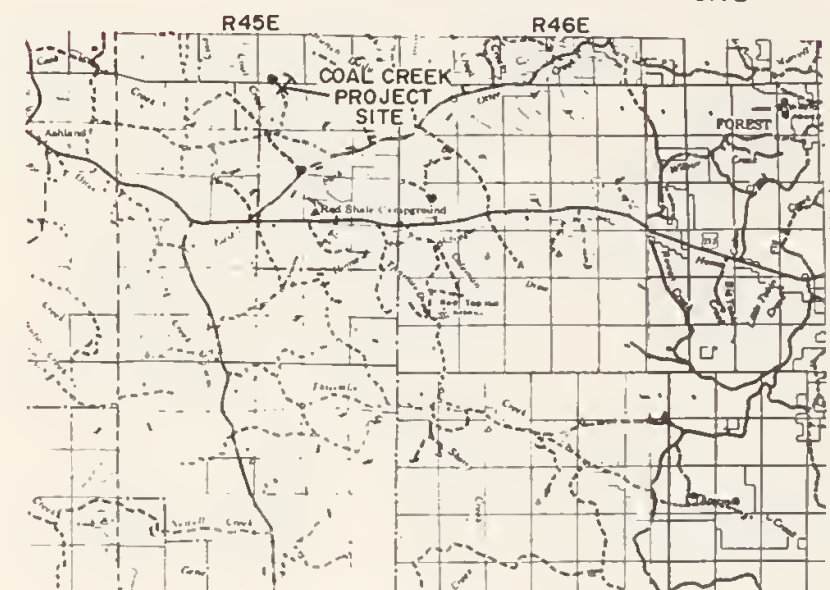
CONSTRUCTION IS LIMITED TO  
THE AREA SHOWN ON THIS  
TOPOGRAPHIC MAP

VEHICLE TRAVEL WILL BE LIMITED  
TO ROUTES FLAGGED ON- SITE BY  
THE PROJECT ENGINEER.



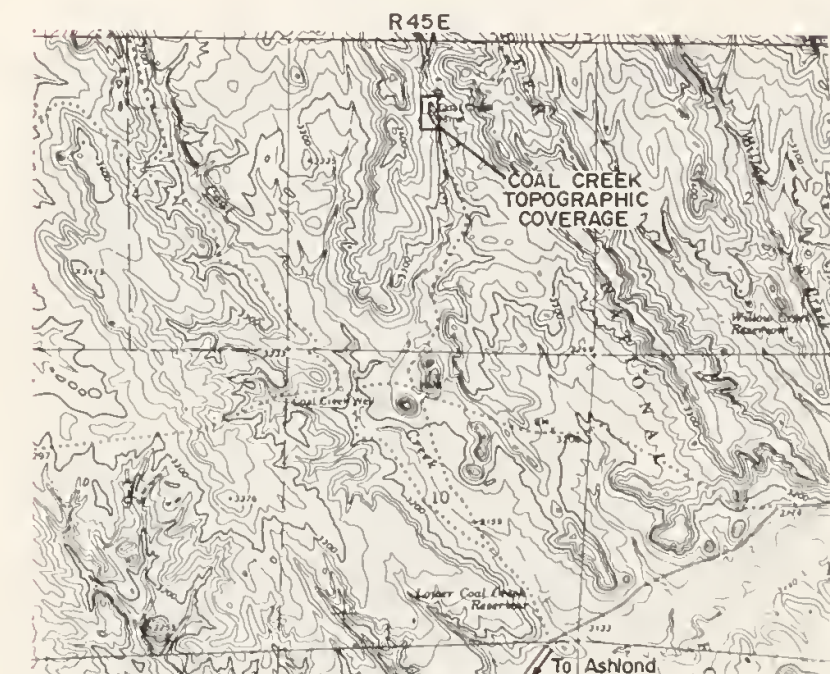
STATE LOCATION MAP

COAL CREEK  
PROJECT  
SITE



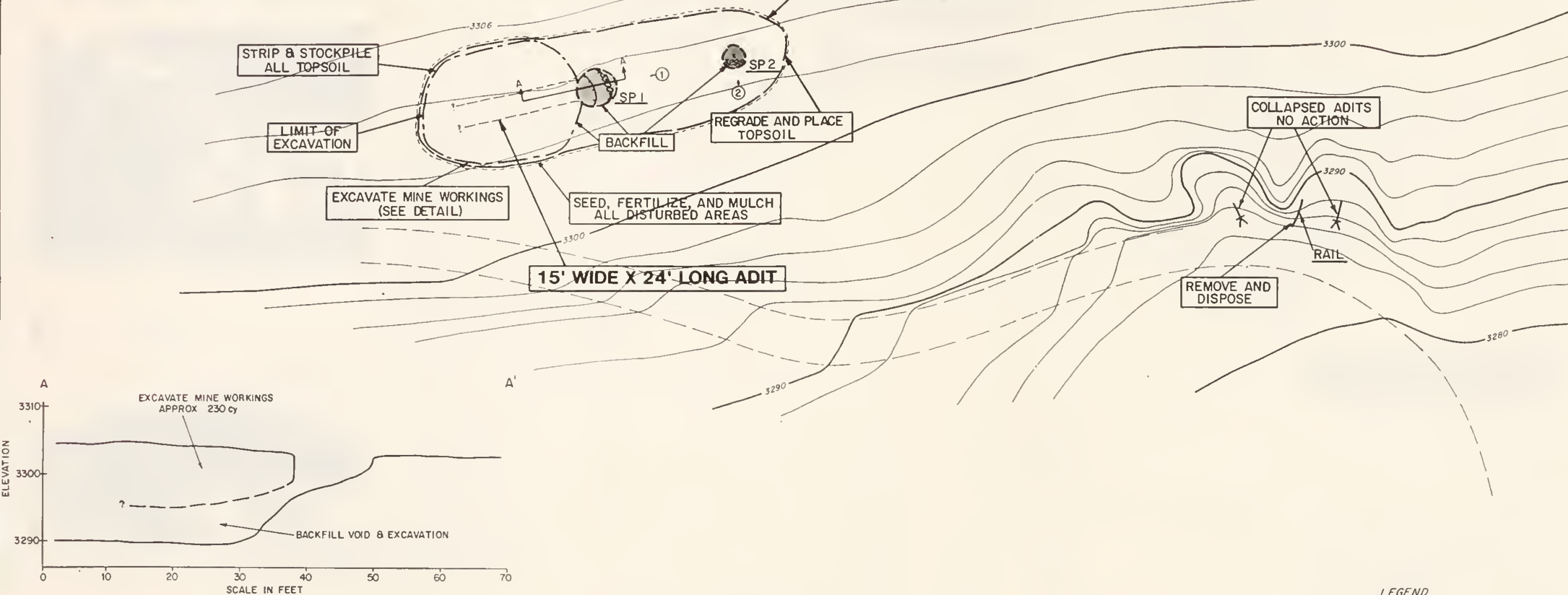
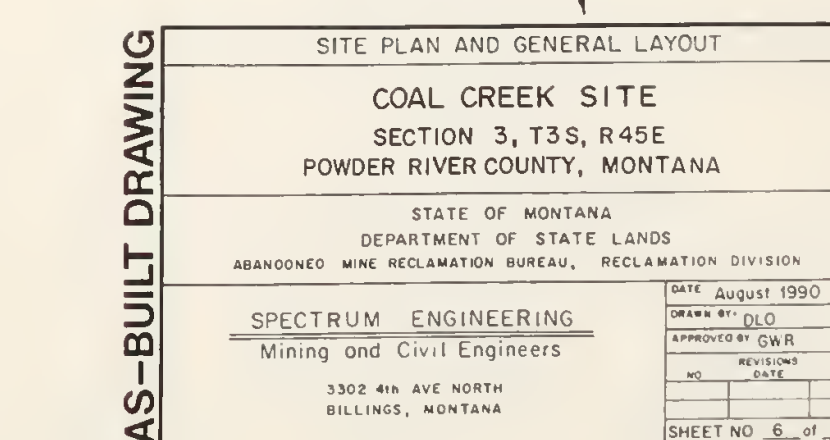
SCALE IN MILES

VICINITY ACCESS MAP



SCALE IN FEET

SITE LOCATION MAP



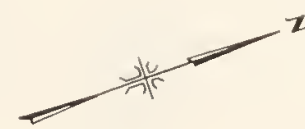
SECTION A-A'

### WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
TOPSOIL	SUBSIDENCES/BORROW AREA	STRIP AND STOCKPILE	40 CY
	STOCKPILES	PLACE FROM STOCKPILE	<u>40 CY</u>
TOTAL (EST.)			80 CY
SUBSIDENCES			
SP 1	SEE TOPOGRAPHIC MAP	BACKFILL	15 CY
SP 2	SEE TOPOGRAPHIC MAP	BACKFILL	<u>5 CY</u>
TOTAL (EST.)			20 CY
WATER	BACKFILL	FOR COMPACTION	3 0 KGAL
	ROADS AND OTHER AREAS	OUST SUPPRESSION	<u>1 0 KGAL</u>
			4 0 KGAL
MINE WORKINGS	SEE MAP	EXCAVATE	230 CY
		BACKFILL	230 CY
		BACKFILL WITH BORROW	<u>30 CY</u>
			480 CY
OISTURBED AREAS	SUBSIDENCE AND BORROW	REVEGETATE	0 10 ACRES
TOTAL (EST.)	AREA		
REVEGETATION OF	FERTILIZER AT 92.5 LBS	APPLY	9 POUNDS
0.10 ACRES	SEED AT 23 LBS PLS	DRILL SEED	2.3 LB PLS
	HAY MULCH AT 3,000 LBS	SPREAD AND CRIMP	300 POUNDS

### WORK DESCRIPTION

- REMOVE RAIL FROM THE COLLAPSED ADIT.
- DISPOSE OF ALL DEBRIS.
- STRIP AND STOCKPILE 4 INCHES OF TOPSOIL FROM THE BORROW AREA, AREAS OVER MINE VOIDS, AND THE SUBSIDENCE PITS.
- EXCAVATE THE UNDERGROUND MINE VOIDS.
- BACKFILL THE MINE VOIDS, EXCAVATIONS, AND SUBSIDENCES. USE STOCKPILED AND BORROW MATERIAL.
- PLACE TOPSOIL FROM THE STOCKPILES OVER THE SUBSIDENCE AND BORROW AREAS.
- REVEGETATE ALL DISTURBED AREAS.



0 10 20 30 40  
SCALE IN FEET  
CONTOUR INTERVAL = 2 FT

Vertical Datum Based On Interpolation Of  
USGS 7 1/2' Quadrangle: WILLOW CROSSING, MT  
Topography Prepared From Ground Survey  
Conducted In 1989 By Spectrum Engineering  
Using A Plane Table And Alidade. This  
Topography Is Of Reconnaissance Class  
And Has Not Been Field Checked.

LANDOWNER AND CONTACT  
SECTION 3, T3S, R45E

GLACIER PARK COMPANY  
ATTN: JIM BISHOP  
P.O. BOX 579  
MILES CITY, MT. 59301  
PHONE (406) 232-1274

LEGEND

- 3300 — CDNTDUR      ① → PICTURE NUMBER AND ORIENTATION
- CDAL SLACK      SP<sup>1</sup> SUBSIDENCE PIT (SP NUMBER & DEPTH)
- · · · — DRAINAGE      — Y — OPEN ADIT

*NOTICE*

AN ABANDONEO COAL MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY

## AS-BUILT DRAWING







① PICTURE 1 SHOWS THE ABANDONED RANCH HOUSE AND SHOP. THE ADIT IS TO THE LEFT OF THE HOUSE AND SHOP.



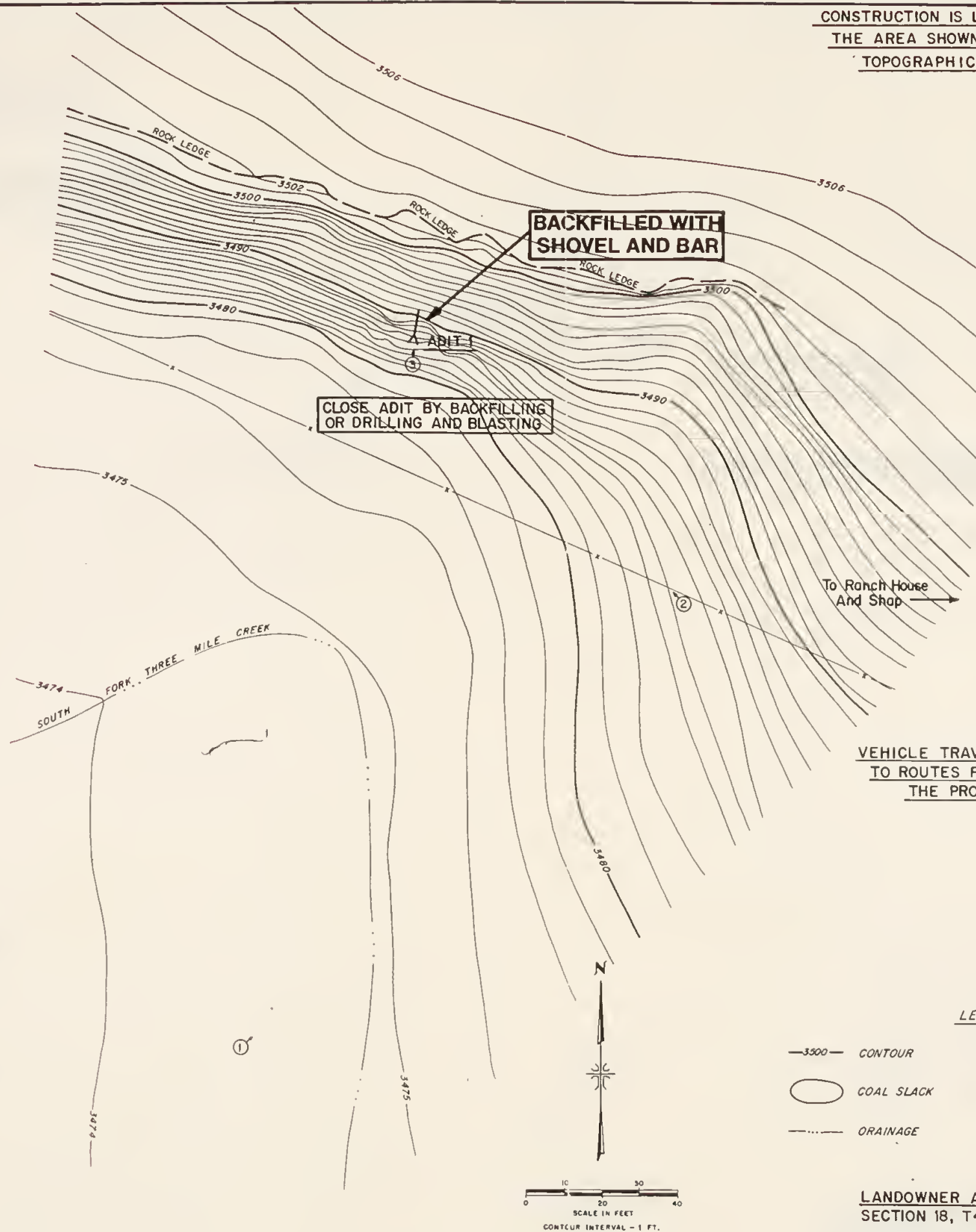
② PICTURE 2 IS AN AERIAL VIEW OF THE OPEN ADIT.



③ PICTURE 3 IS A CLOSE-UP OF THE ADIT OPENING. WORKINGS TO WIDEN AND DEEPEN INSIDE.

#### WORK DESCRIPTION

- CLOSE ADIT 1. THE CONTRACTOR MAY EMPLOY BACKFILLING OR DRILLING AND BLASTING.



Vertical Datum Based On Interpolation Of USGS 7 1/2' Quadrangle, THREEMILE BUTTE, MT. Topography Prepared From Ground Survey Conducted In 1989 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked.

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.

CONSTRUCTION IS LIMITED TO THE AREA SHOWN ON THIS TOPOGRAPHIC MAP.

VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.

LANDOWNER AND CONTACT  
SECTION 18, T4S, R47E

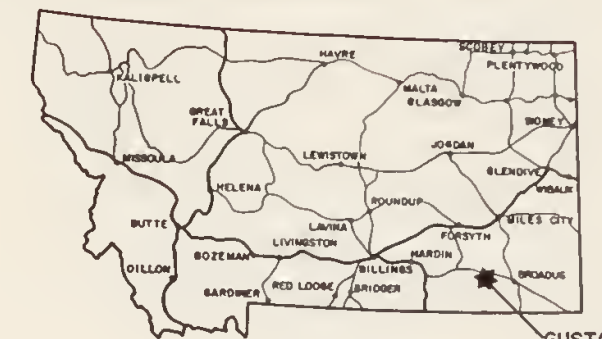
TRUSLER, INC.  
W.W. BILL TRUSLER  
P.O. BOX 306  
ASHLAND, MT. 59003  
PHONE (406) 784-2337

#### LEGEND

- 3500 — CONTOUR
- COAL SLACK
- DRAINAGE
- ① — PICTURE NUMBER AND ORIENTATION
- SP1 — SUBSIDIARY PIT (SP) NUMBER (8 DEPTH)
- OPEN ADIT

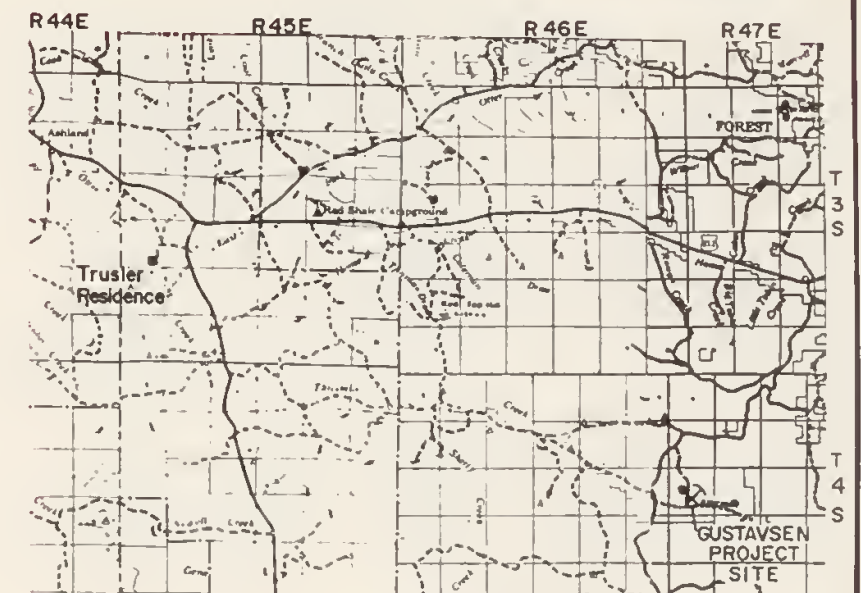
#### NOTICE

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STATE LOCATION MAP

GUSTAVSEN PROJECT SITE



VICINITY ACCESS MAP



SITE LOCATION MAP

AS-BUILT DRAWING

#### SITE PLAN AND GENERAL LAYOUT

GUSTAVSEN SITE  
SECTION 18, T4S, R47E  
POWDER RIVER COUNTY, MONTANA

STATE OF MONTANA  
DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

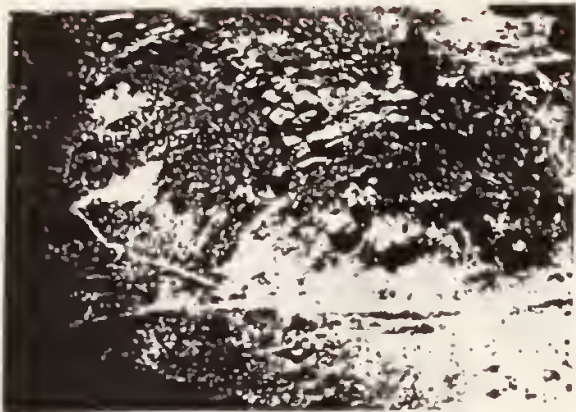
SPECTRUM ENGINEERING  
Mining and Civil Engineers

3302 4th AVE NORTH  
BILLINGS, MONTANA

DATE August 1990  
DRAWN BY OLO  
APPROVED BY GWR  
NO. 7  
REVISIONS  
DATE  
BY  
SHEET NO. 7 of 11



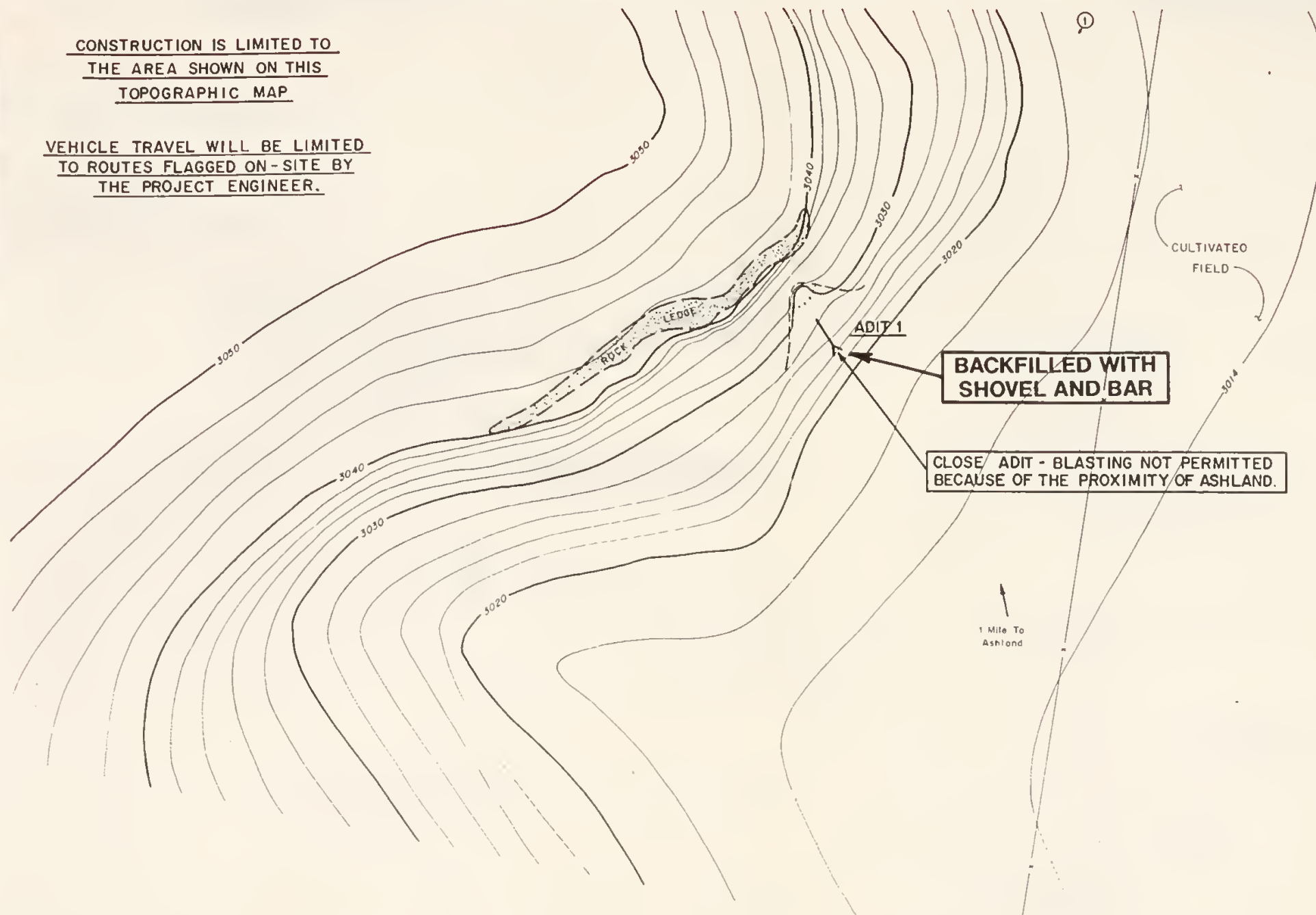




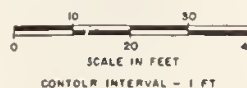
① PICTURE 1 SHOWS ADIT 1.

CONSTRUCTION IS LIMITED TO  
THE AREA SHOWN ON THIS  
TOPOGRAPHIC MAP

VEHICLE TRAVEL WILL BE LIMITED  
TO ROUTES FLAGGED ON-SITE BY  
THE PROJECT ENGINEER.



NOTE: DUE TO THE PROXIMITY OF ASHLAND,  
DRILLING AND BLASTING WILL NOT BE  
PERMITTED AT THIS SITE.



LEGEND	
—3040—	CONTOUR
○	COAL SLACK
—	DRAINAGE
①	PICTURE NUMBER AND ORIENTATION
SP 1	SUBSIDENCE PIT (SP) NUMBER (8 DEPTH)
—	OPEN ADIT

LANDOWNER AND CONTACT  
SECTION 13, T3S, R44E

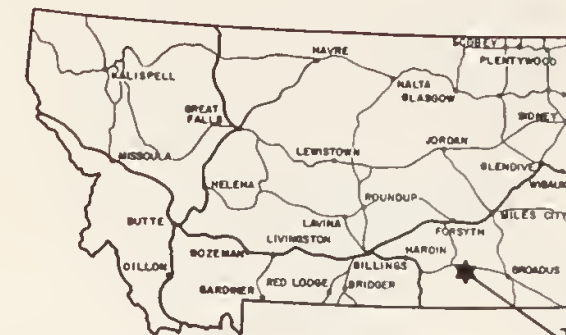
TRUSLER, INC.  
W.W. BILL TRUSLER  
P.O. BOX 306  
ASHLAND, MT. 59003  
PHONE (406) 784-2337

NOTICE

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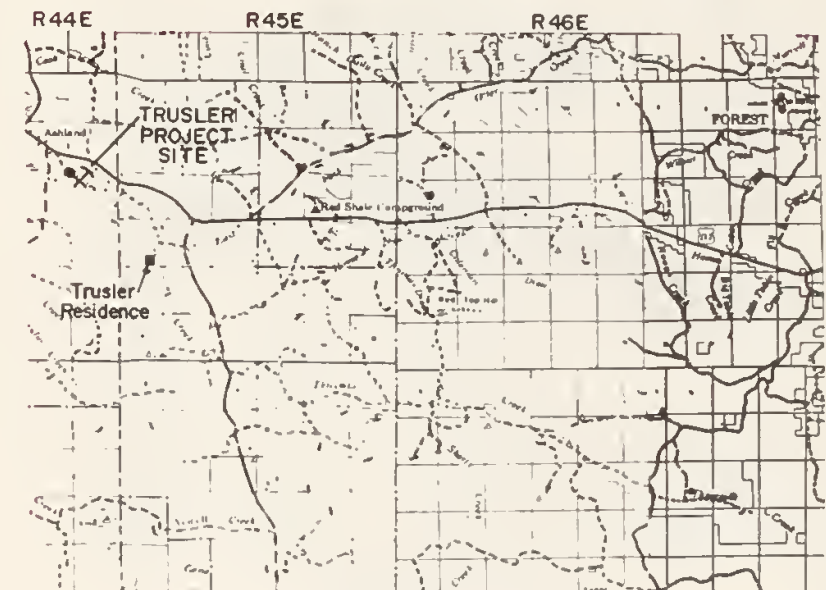
ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.

Vertical Datum Based On Interpolation Of  
USGS 7 1/2' Quadrangle: ASHLAND, MT.  
Topography Prepared From Ground Survey  
Conducted In 1939 By Spectrum Engineering  
Using A Plane Table And Alidade. This  
Topography Is Of Reconnaissance Class  
And Has Not Been Field Checked

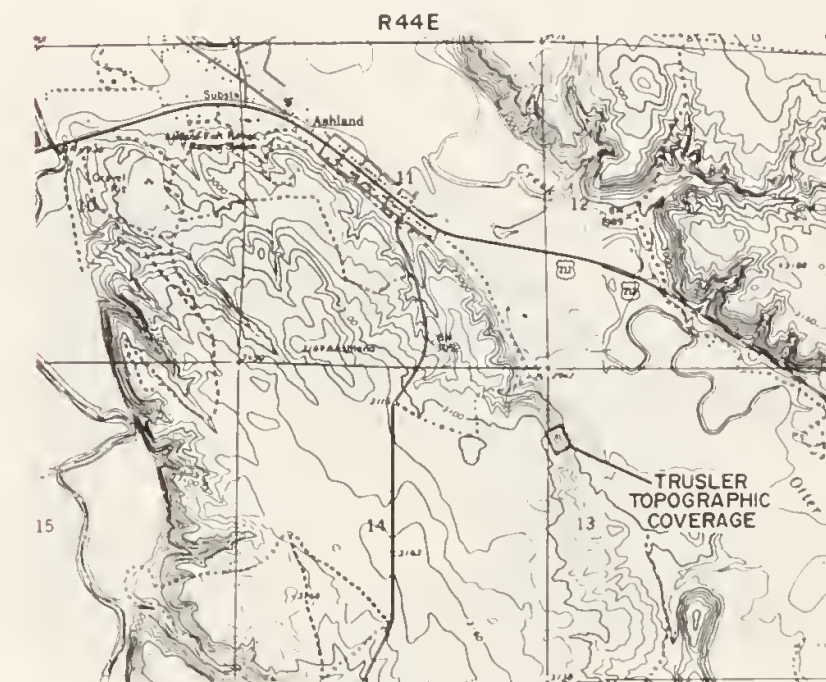


STATE LOCATION MAP

TRUSLER  
PROJECT  
SITE



VICINITY ACCESS MAP



SITE LOCATION MAP

SITE PLAN AND GENERAL LAYOUT

TRUSLER SITE  
SECTION 13, T3S, R44E  
ROSEBUD COUNTY, MONTANA

STATE OF MONTANA  
DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

SPECTRUM ENGINEERING  
Mining and Civil Engineers

3302 4th AVE NORTH  
BILLINGS, MONTANA

DATE August 1990

DRAWN BY: DLO

APPROVED BY: GWR

NO. REVISIONS

DATE BY

SHEET NO 8 of 11

AS-BUILT DRAWING



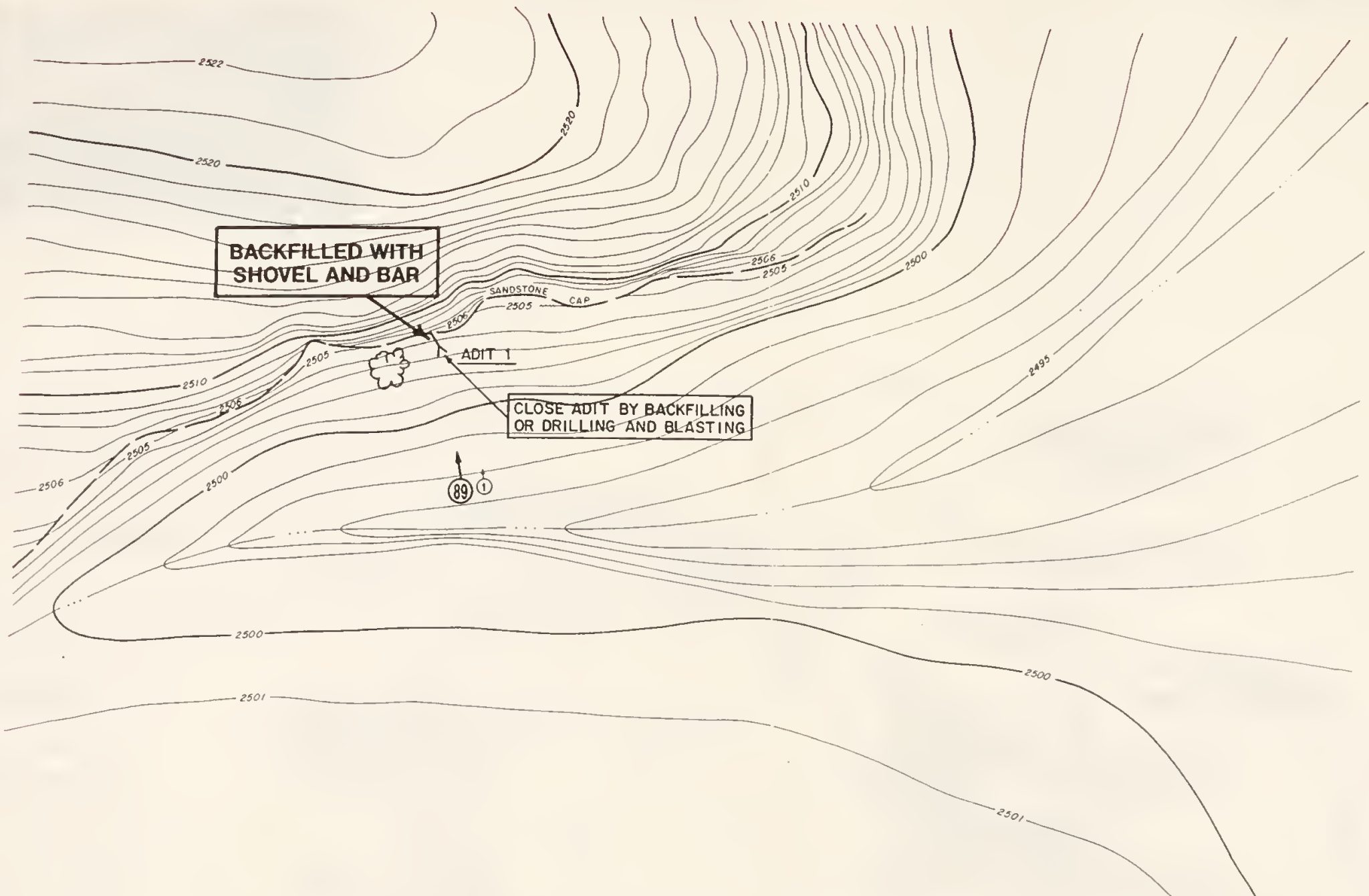




1 PICTURE 1 IS AN AERIAL VIEW OF ADIT 1.

VEHICLE TRAVEL WILL BE LIMITED  
TO ROUTES FLAGGED ON-SITE BY  
THE PROJECT ENGINEER.

CONSTRUCTION IS LIMITED TO  
THE AREA SHOWN ON THIS  
TOPOGRAPHIC MAP



LANDOWNER AND CONTACT  
SECTION 24, T6N, R43E

HUNT OIL COMPANY  
FOUNTAIN PLACE  
1445 ROSS ST FIELD  
DALLAS, TX. 75202-2785  
PHONE (214) 978-8000

WORK DESCRIPTION

- CLOSE ADIT 1. THE CONTRACTOR MAY EMPLOY BACKFILLING OR DRILLING AND BLASTING.

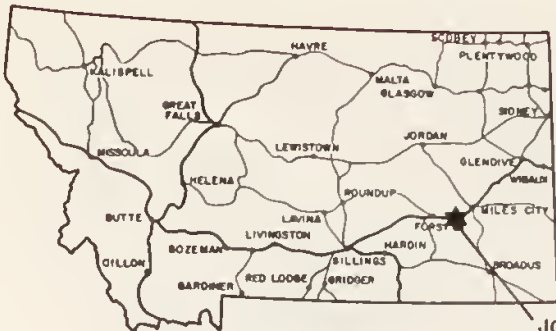
Vertical Datum Based On Interpolation Of  
USGS 7 1/2' Quadrangle: THURLOW, MT.  
Topography Prepared From Ground Survey  
Conducted In 1989 By Spectrum Engineering  
Using A Plane Table And Alidade. This  
Topography Is Of Reconnaissance Class  
And Has Not Been Field Checked.

ADDITIONAL INFORMATION PERTAINING TO THIS  
SITE MAY EXIST IN THE DEPARTMENT OF STATE  
LANDS' FILES OR AT SPECTRUM ENGINEERING'S  
OFFICE. THIS MATERIAL IS AVAILABLE FOR  
REVIEW BY ANY INTERESTED PARTY

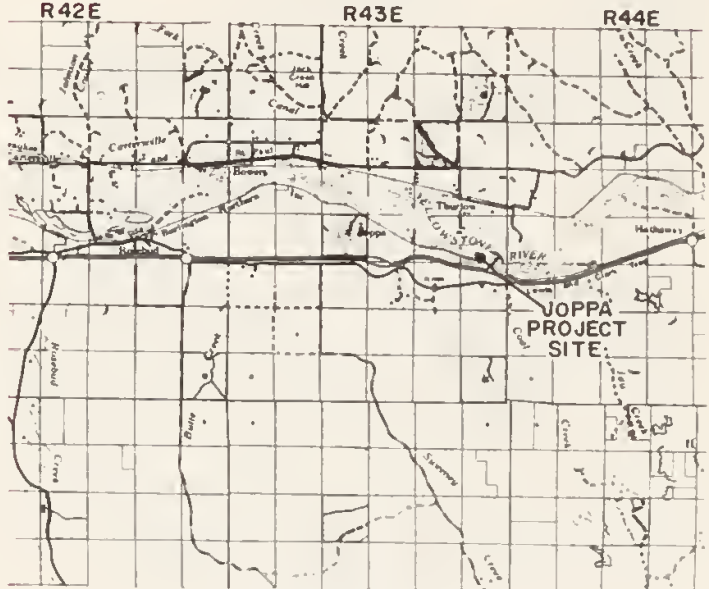
- LEGEND
- 2500 — CONTOUR
  - COAL SLACK
  - DRAINAGE
  - ① PICTURE NUMBER AND ORIENTATION
  - SP1 SUBSIDENCE PIT (SP) NUMBER (8 DEPTH)
  - OPEN ADIT

NOTICE

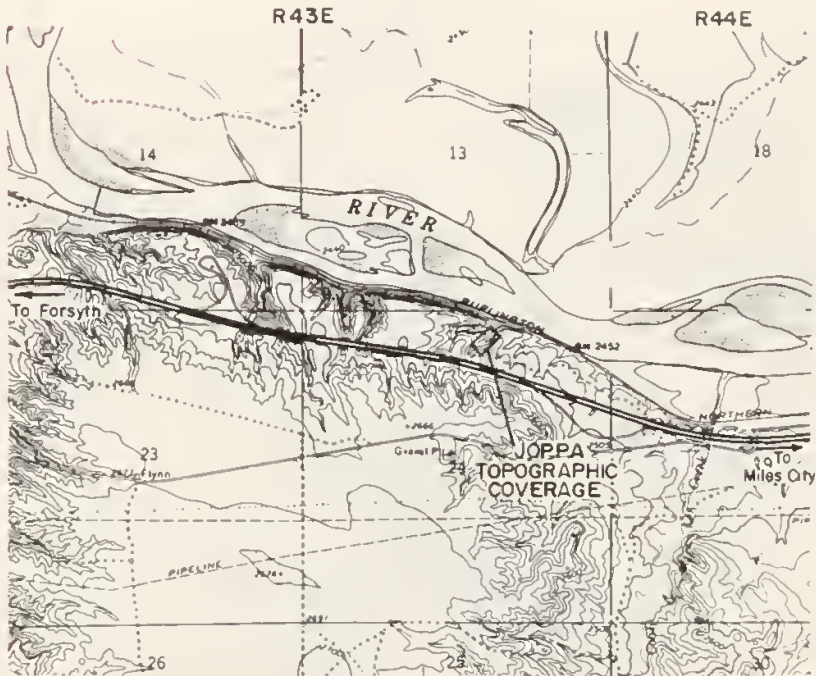
AN ABANDONED COAL MINE UNDERLIES THIS SITE.  
MANY POTENTIAL HAZARDS EXIST. THE EXTENT  
OF THESE HAZARDS IS NOT FULLY KNOWN.  
CONTRACTORS AND OTHER PERSONS WORKING AT  
THE SITE SHALL APPRISE THEMSELVES OF THE  
CONDITIONS AND TAKE WHATEVER STEPS ARE  
DEEMED NECESSARY TO INSURE SAFETY WHILE  
PERFORMING THEIR DUTIES.



STATE LOCATION MAP  
JOPPA PROJECT SITE



VICINITY ACCESS MAP



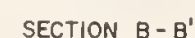
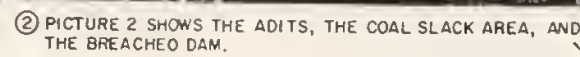
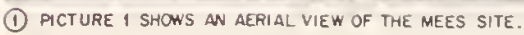
SITE LOCATION MAP

AS-BUILT DRAWING

SITE PLAN AND GENERAL LAYOUT	
JOPPA SITE	
SECTION 24, T6N, R43E	
ROSEBUD COUNTY, MONTANA	
STATE OF MONTANA DEPARTMENT OF STATE LANDS ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION	
SPECTRUM ENGINEERING Mining and Civil Engineers	
3302 4th AVE NORTH BILLINGS, MONTANA	
DATE: AUGUST 1990 DRAWN BY: DLO APPROVED BY: GWR	
NO. DATE BY	
SHEET NO. 9 of 11	







### WORK DESCRIPTION

MINE SITE

- STRIP AND STOCKPILE 4 INCHES OF TOPSOIL FROM THE BORROW AREA, AREAS OVER MINE VOIDS, AND THE AREA OF THE DAM
- COLLAPSE THE ROOF OVER THE UNDERGROUND MINE VOIDS, AS SHOWN
- BACKFILL THE SUBSIDENCE CREATED BY THE COLLAPSED MINE VOIDS USE COAL SLACK UNTIL DEPLETED AND FINISH WITH MATERIAL FROM THE BORROW AREA
- NEUTRALIZE COAL SEACK AREAS
- REBUILD THE SMALL DAM TO THE CONTOURS SHOWN. THE EMBANKMENT SHALL BE BUILT IN 6" (LOOSE THICKNESS) LIFTS TO 95% MAXIMUM DENSITY
- PLACE TOPSOIL FROM THE STOCKPILES OVER THE SUBSIDENCE AND BORROW AREAS
- REVEGETATE ALL DISTURBED AREAS
- INSTALL 4-FM FARM FENCE, SINGLE AND DOUBLE PANELS, AND GATE AS SHOWN

CABIN SITE (Not Shown)

- \* REMOVE AND DISPOSE OF CABIN REMAINS AND DEBRIS.
- \* REGRADE THE AREA BLENDING THE CONTOURS IN WITH SURROUNDING TOPOGRAPHY
- \* REVEGETATE ALL DISTURBED AREAS
- \* INSTALL 4.4M FARM FENCE SINGLE AND DOUBLE PANELS, AND GATE

### WORK SUMMARY TABLE

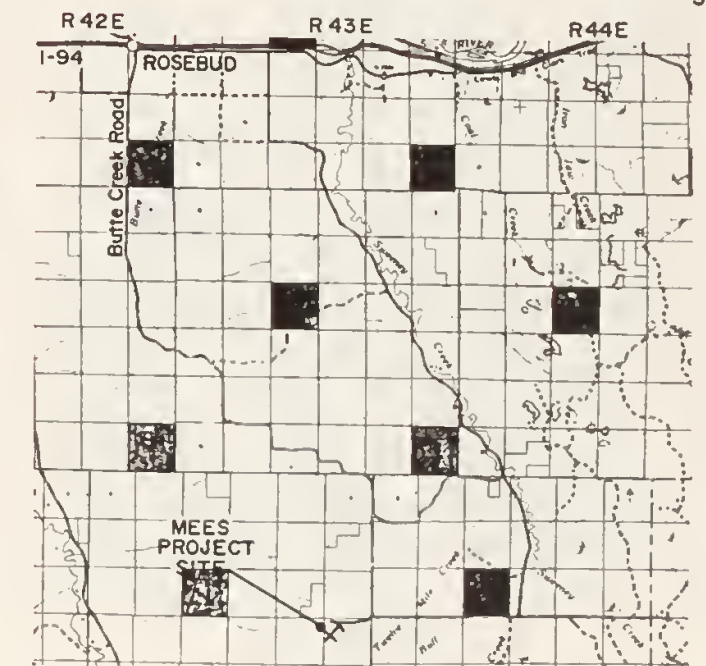
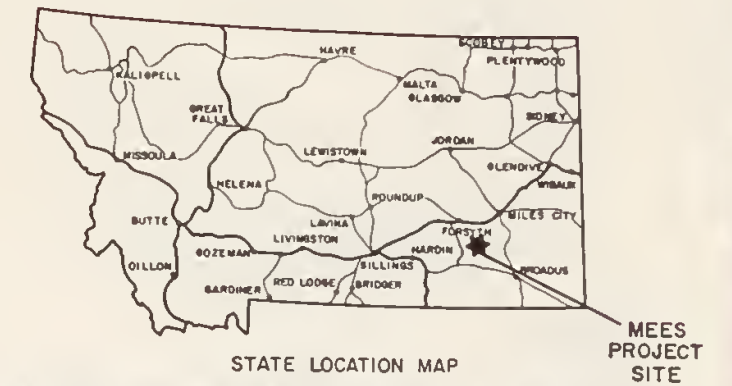
ITEM	DESCRIPTION	ACTION	QUANTITY
DEBRIS	CABIN AND MINE SITE	REMOVE AND DISPOSE	2 - 3 PICKUP LOADS
TOPSOIL	MINE/DAM BORROW AREA	STRIP AND STOCKPILE	95 CY
TOTAL (EST.)	FROM BORROW AREA STOCKPILES	DIRECT PLACE PLACE FROM STOCKPILE	100 CY 95 CY 290 CY
MINE WORKINGS	SEE TOPOGRAPHIC MAP	COLLAPSE ROAD BACKFILL VOID	250 CY
DAM	COMPACTED EARTH/FILL EMBANKMENT WITH SPILLWAY	CONSTRUCT AS SHOWN	75 CY
AREA REGRADE	CABIN SITE	REGRADE AREA SMOOTH	50 CY
WATER	BACKFILL AND EMBANKMENTS ROADS/CONSTRUCTION AREA	FUR COMPACTION DUST SUPPRESSION	3 0 KGAL 2 0 KGAL 5 0 KGAL
COAL SLACK AREA	REGRADED COAL SLACK PILE	NEUTRALIZE AT 5 TDNS PER ACRE PURE CaCO <sub>3</sub>	0 10 ACRES 10 5 TONS
DISTURBED AREAS	COAL SLACK AREA DAM CAVEIN AREA ROADS	REVEGETATE REVEGETATE REVEGETATE REVEGETATE	0 10 ACRES 0 03 ACRES 0 02 ACRES 0 10 ACRES
TOTAL (EST.)	SUBSIDENCE BORROW AREAS	REVEGETATE	0 12 ACRES 0 37 ACRES
REVEGETATION OF 0 37 ACRES	FERTILIZER AT 92 5 LBS SEED AT 23 LBS PLS HAY MULCH AT 3 000 LBS	APPLY DRILL SEED SPREAD AND CRIMP	34 POUNDS 8 5 LB PLS 1,110 POUNDS
FENCE MINE AND CABIN SITES	TYPE F-4M FARM FENCE SINGLE PANELS DOUBLE PANELS TYPE F-4 FARM FENCE GATES	INSTALL INSTALL INSTALL INSTALL (2)	1,030 L FT 3 EACH 10 EACH 32 L FT

LANDOWNER AND CONTACT  
SECTION 24, T4N, R43E

LAVON MEES TRUST  
% MARK MEES  
MEES HEREFORD RANCH  
ROSEBUD, MT. 59347  
PHONE (406) 347-5413

VEHICLE TRAVEL WILL BE LIMITED  
TO ROUTES FLAGGED ON-SITE BY  
THE PROJECT ENGINEER.

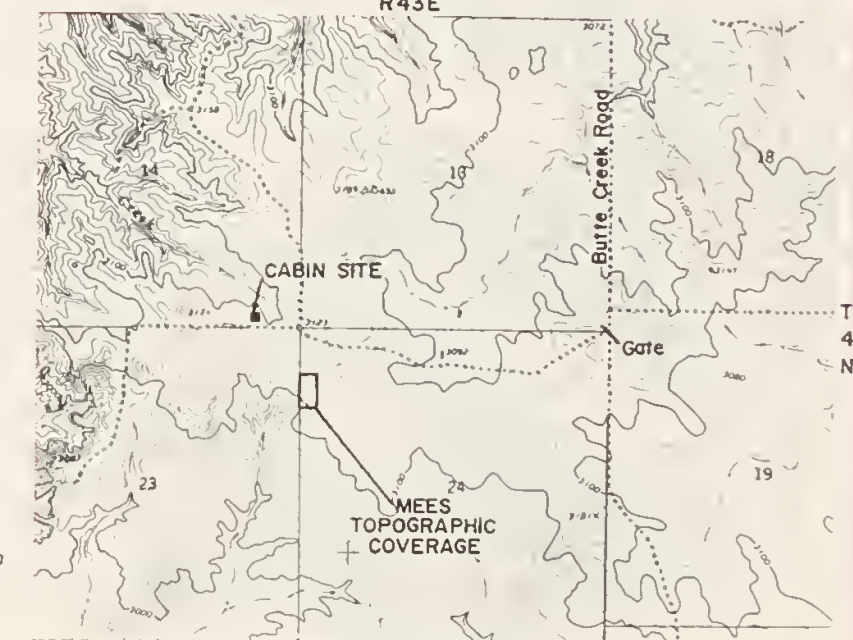
CONSTRUCTION IS LIMITED TO  
THE AREA SHOWN ON THIS  
TOPOGRAPHIC MAP



SCALE IN MILES

VICINITY ACCESS MAP

R43E



1000 3000  
0 2000 4000  
SCALE IN FEET  
SITE LOCATION MAP

## SITE PLAN AND GENERAL LAYOUT

## MEES SITE

SECTION 24, T4 N, R43E  
ROSEBUD COUNTY, MONTANA

STATE OF MONTANA  
DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION


**SPECTRUM ENGINEERING**  
Mining and Civil Engineers




3302 4th AVE NORTH  
BILLINGS, MONTANA

DATE August 1990		
DRAWN BY: DLO		
APPROVED BY GWR		
REVISIONS		
NO	DATE	BY
SHEET NO 10 of 11		

AN ABANDONED COAL MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.

LEGEND

—3100— CONTOUR  
 COAL SLAG  
 —...— DRAINAGE

 PICTURE NUMBER  
AND ORIENTATION  
 UNDERGROUND  
MINE WORKINGS  
 OPEN ADIT

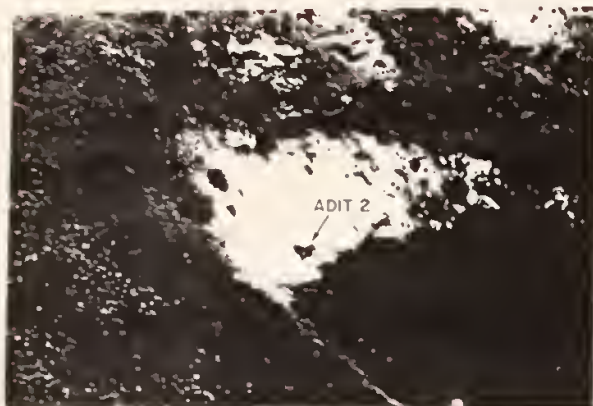
**NOTICE**

## AS-BUILT DRAWING







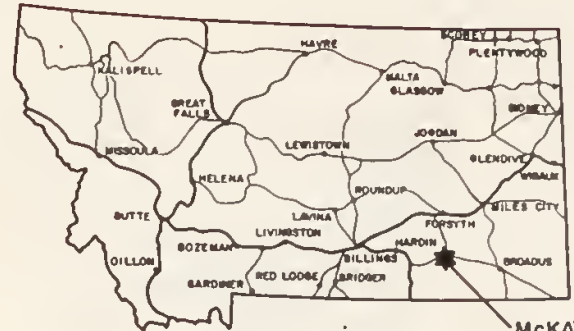
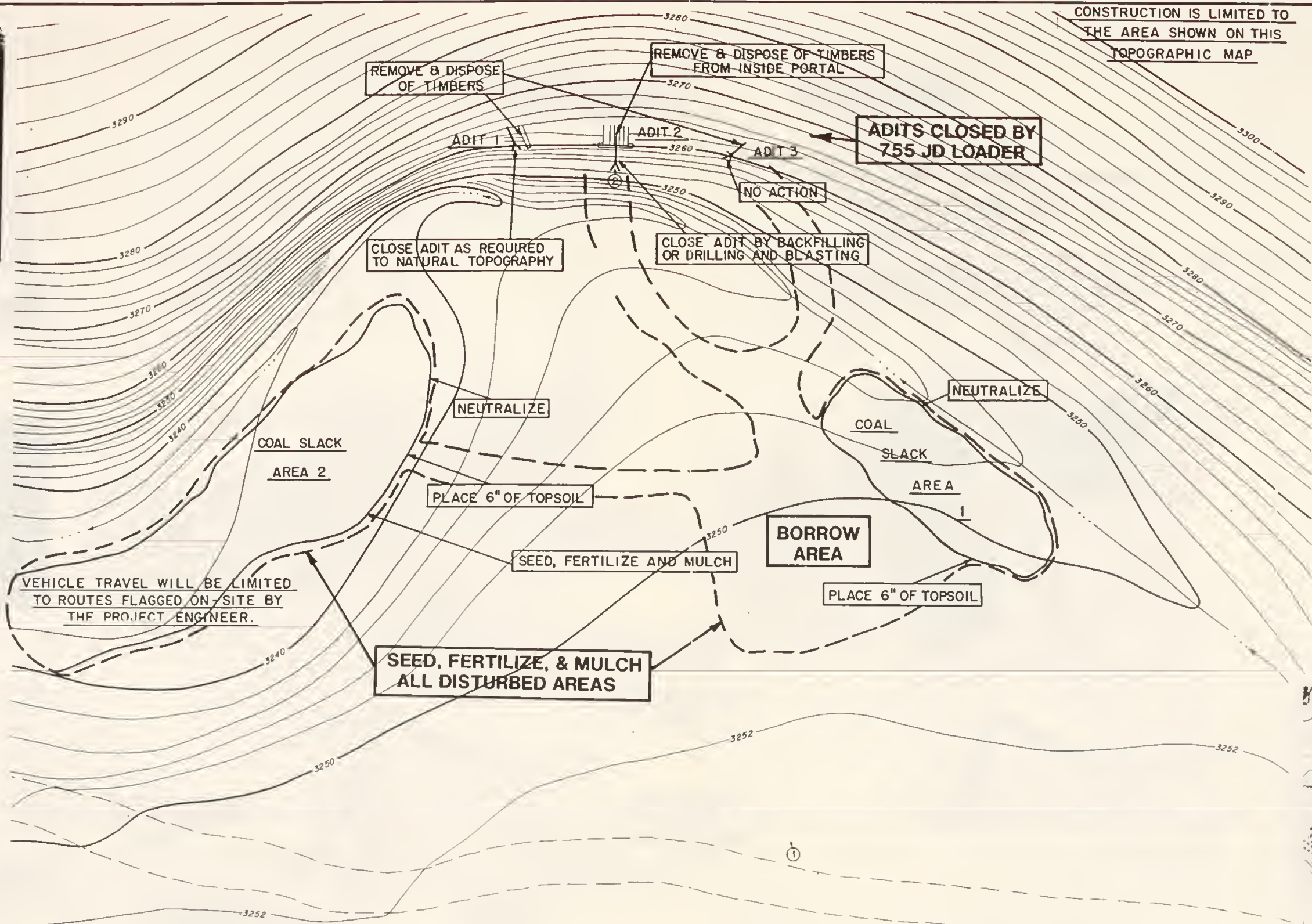


1 PICTURE 1 SHOWS AN AERIAL VIEW OF THE MCKAY MINE SITE.

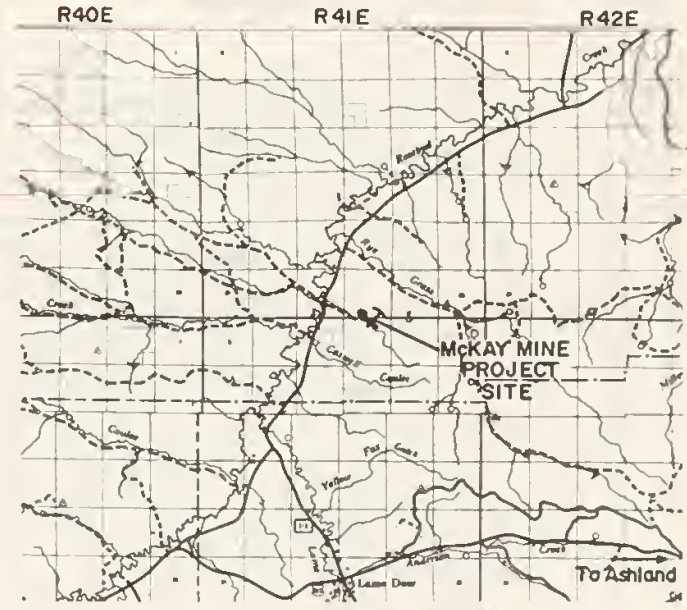


2 PICTURE 2 SHOWS ADIT 2

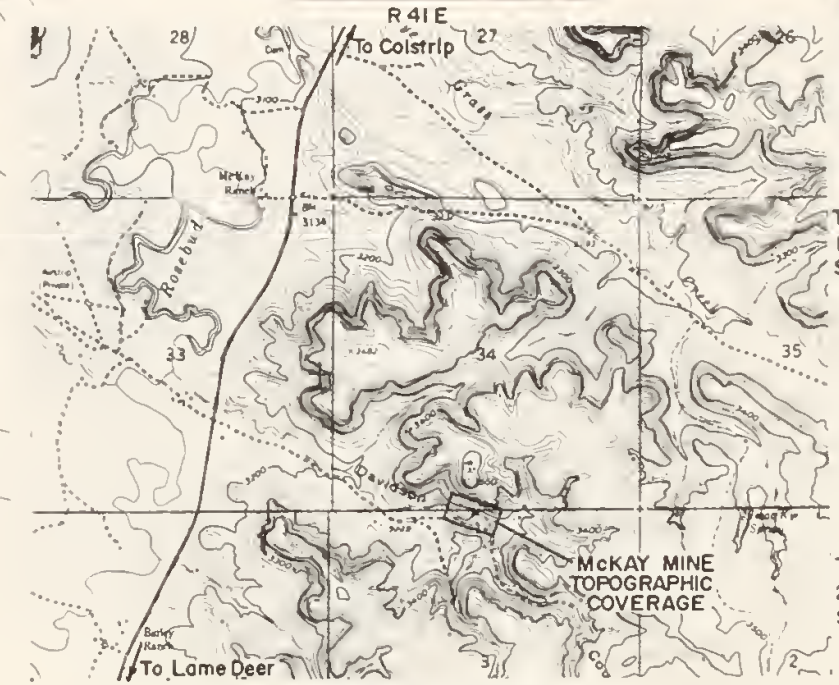
CAUTION: EXPLOSIVES MAY BE PRESENT AT THE SITE. IF SO, CONSULT THE OWNER'S REPRESENTATIVE FOR THE PROPER PROCEDURE TO FOLLOW.



STATE LOCATION MAP



VICINITY ACCESS MAP



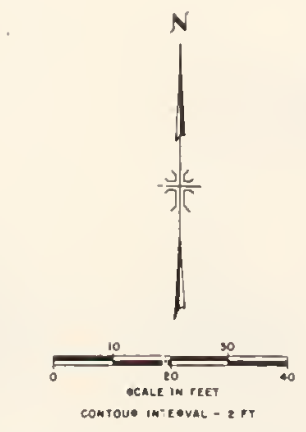
SITE LOCATION MAP

WORK DESCRIPTION

- REMOVE MINE TIMBERS FROM ADIT 1
- REMOVE THE DOOR, DOOR FRAME, AND TIMBERS FROM WITHIN ADIT 2. ALL PIECES OF HARDWARE FROM THE DOOR AND ALL ARTIFACTS FOUND INSIDE THE DOOR WILL BE GIVEN TO THE OWNER'S REPRESENTATIVE FOR HANDLING.
- REMOVE AND DISPOSE OF ALL DEBRIS
- CLOSE ADITS 1 AND 2 BY BACKFILLING OR BY DRILLING AND BLASTING
- NEUTRALIZE COAL SLACK AREAS
- PLACE 6 INCHES OF TOPSOIL OVER THE NEUTRALIZED COAL SLACK AREA
- PLACE TOPSOIL FROM THE STOCKPILE OVER THE BORROW AREA
- REVEGETATE ALL DISTURBED AREAS

WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
MINE WORKINGS	ADITS 1 AND 2	REMOVE DOOR, TIMBERS CLOSE ADITS	2 EACH
TOPSOIL	BORROW AREA NEUTRALIZED COAL SLACK STOCKPILES	STRIP AND STOCKPILE DIRECT PLACE PLACE FROM STOCKPILE	70 CY 200 CY 70 CY 340 CY
TOTAL (EST.)			
WATER	ROADS AND OTHER AREAS	DUST SUPPRESSION	2.0 KGAL
COAL SLACK AREAS	ADJACENT TO CREEK	NEUTRALIZE AT 5 TONS PER ACRE PURE CaCO <sub>3</sub>	0.25 ACRES (11.25 TONS)
DISTURBED AREAS	COAL SLACK AREA BORROW AREA	REVEGETATE REVEGETATE	0.25 ACRES 0.13 ACRES 0.38 ACRES
TOTAL (EST.)			
REVEGETATION OF 0.38 ACRES	FERTILIZER AT 92.5 LBS SEED AT 23 LBS PLS HAY MULCH AT 3,000 LBS	APPLY DRILL SEED SPREAD AND CRIMP	35.2 POUNDS 8.7 LB PLS 1,140 POUNDS



Vertical Datum Based On Interpolation Of USGS 7 1/2' Quadrangle: JIM TOWN, MT. Topography Prepared From Ground Survey Conducted In 1989 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked.

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.

LANDOWNER AND CONTACT  
SECTION 34, T1S, R41E  
SECTION 3, T2S, R41E

PEABODY DEVELOPMENT CO.  
ATTN: VIC GARBER  
P.O. BOX 706  
DOUGLAS, WY. 82633  
PHONE (307) 358-6803

LEGEND

- 3250 CONTOUR
- COAL SLACK
- DRAINAGE
- SP1 SUBSIDENCE PIT (SP) NUMBER (8 DEPTH)
- OPEN ADIT

NOTICE

AN ABANDONED COAL MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.

AS-BUILT DRAWING

SITE PLAN AND GENERAL LAYOUT

MCKAY MINE SITE  
SECTION 34, T1S, R41E  
SECTION 3, T2S, R41E  
ROSEBUD COUNTY, MONTANA

STATE OF MONTANA  
DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

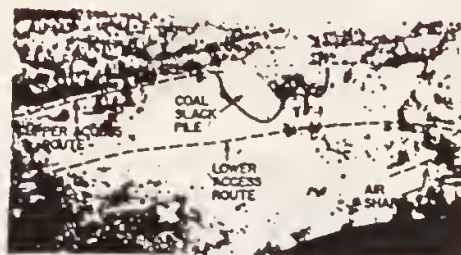
SPECTRUM ENGINEERING  
Mining and Civil Engineers

3302 4th AVE NORTH  
BILLINGS, MONTANA

DATE	August 1990
DRAWN BY	DLO
APPROVED BY	GWR
REVISIONS	
NO.	DATE
BY	
SHEET NO.	11 of 11







① PICTURE 1 SHOWS THE ENTIRE SITE.



② PICTURE 2 SHOWS THE AIR SHAFT AND DEBRIS.

WORK SUMMARY TABLE

ITEM	DESCRIPTION	SECTION	QUANTITY
WATER	20" x 15" x 8' DEEP	BACKFILL WITH COAL SLACK	55 BCT
COAL SLACK PILE	REMOVE AND USE AS BACKFILL MATERIAL FOR WIREMESH	REMOVE AND USE AS BACKFILL AT THE WESTERN MINE SITE	55 BCT
DEBRIS	18 AND 18" AND 18" DEEP	REMOVE AND DISPOSE OF	12 HICUP LOADS
TOPSOIL	BORROW AREA (1.53 ACRES)	SALVAGE AND REPLACE (1.53 ACRES)	875 BCT
WATER	AS REQUIRED	COMPACTION AND REGRADE	10,000 GALLONS
NEUTRALIZE	1.55 ACRES	100% CALCIUM CARBONATE APPLICATION (14 TONS/ACRE/6" SLICE)	21.8 TONS
EROSION CONTROL BLANKET	SEE TECHNICAL SPEC	PLACE ON STEEP SLOPES	4,700 SQ
REVEGETATION OF DISTURBED AREA	SEED APPLICATION (22.155 PLS/ACRE)	FERTILIZER APPLICATION (192.5 LBS NUTRIENT/ACRE)	MULCH APPLICATION (13000 LBS/ACRE)
RECLAIMED AREAS	2.63 ACRES	17.185 PLS	168 LBS
TOPSOIL BORROW AREA	1.53 ACRES	36.185 PLS	162 LBS
TOTALS	3.36 ACRES	83.185 PLS	330 LBS

\*NOTE: DOES NOT INCLUDE AREAS IN WHICH EROSION CONTROL BLANKET IS TO BE PLACED

WORK DESCRIPTION

- DISPOSE OF ALL DEBRIS ENTERING THE SITE
- PROVIDE WATER FOR USE IN COMPACTION, REGRADING, AND DUST SUPPRESSION TO THE CONSTRUCTION AREA
- REMOVE AND DISPOSE OF DEBRIS ON TOP OF COAL SLACK PILE AND FROM WITHIN AND AROUND THE AIRSHAFT
- SALVAGE AND REPLACE ALL TOPSOIL FROM AREAS ON WHICH THE COAL SLACK PILE IS TO BE REGRADED
- BACKFILL AIRSHAFT WITH COAL SLACK MATERIAL
- WALL SUFFICIENT PORTION OF COAL SLACK PILE TO BACKFILL THE ADJACENT EXCAVATION AND AIR SHAFT AT THE WESTERN MINE SITE (SEE SHEETS 2 AND 3 OF 3)
- REGRADE THE COAL SLACK PILE TO 2.5% TV SMOOTH AVERAGE SLOPES BLENDING WITH SURROUNDING TOPOGRAPHY
- NEUTRALIZE COAL SLACK AREAS
- PLACE 1" OF TOPSOIL FROM TOPSOIL BORROW AREA OVER ALL REGRADED AREAS, BACKFILLED AREAS AND COAL SLACK AREAS
- PLACE EROSION CONTROL BLANKET ON STEEP SLOPES AS SHOWN ON SITE PLAN
- SEED, FERTILIZE, AND MULCH ALL DISTURBED AREAS
- ADDITIONAL WORK DESCRIPTION DETAILS CAN BE FOUND IN THE SPECIAL PROVISIONS

LANDOWNERS AND CONTACTS  
 S. 1/2 OF SECTION 4  
 ALICE BROWER  
 SALLEE MURPHEE  
 NANCY GLENN  
 50 ALICE BROWER  
 803 1st WEST  
 ROUNDUP, MT 59072  
 PHONE: (406) 323-3194

SECTION 9, ALL  
 JOSEPH K. KUZARA  
 62 WESTERN ROAD  
 ROUNDUP, MT 59072  
 PHONE: (406) 323-2628

— 3760 — CONTOUR  
 — COAL SLACK  
 — DRAINAGE

LEGEND

① PICTURE NUMBER AND ORIENTATION  
 --- UNDERGROUND MINE WORKINGS  
 --- OPEN ADIT

Vertical Datum Based On Interpolation Of USGS 7 1/2' Quadrangle: GAGE MT  
 Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.

NOTICE

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VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.

CONSTRUCTION IS LIMITED TO THE AREA SHOWN ON THIS TOPOGRAPHIC MAP

ISOPACH MAP FOR COAL SLACK PILE REMOVAL AND REGRADING

NOTE: DASHED LINES REPRESENT FILLS. SOLID LINES REPRESENT CUTS. NUMBERS INDICATE FEET WITH A 2' ISOPACH CONTOUR INTERVAL.

REAPPLIED EROSION CONTROL BLANKET BLOWN OFF BY HEAVY WINDS

LIMITS OF CUTS AND FILLS

REMOVE AND REPLACE EXISTING FENCE TO ALLOW RECLAMATION

REMOVE PILE AS BACKFILL FOR WESTERN MINE SITE PROJECT AND AIRSHAFT

REGRADE REMAINING COAL SLACK TO 2.5% TV AVG. SLOPES

SEED, FERTILIZE, AND PLACE EROSION CONTROL BLANKET

NEUTRALIZE AND COVER WITH 1" TOPSOIL

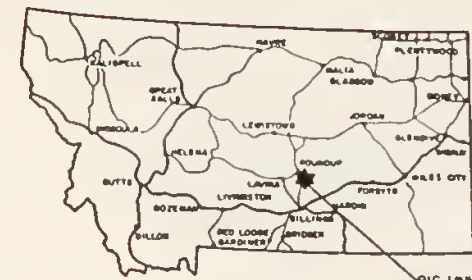
SEED, FERTILIZE, AND MULCH

REMOVE AND DISPOSE OF DEBRIS

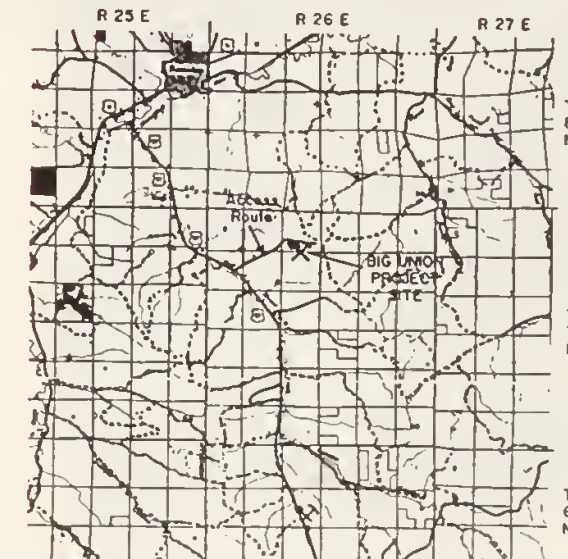
AIRSHAFT

BACKFILL AIRSHAFT

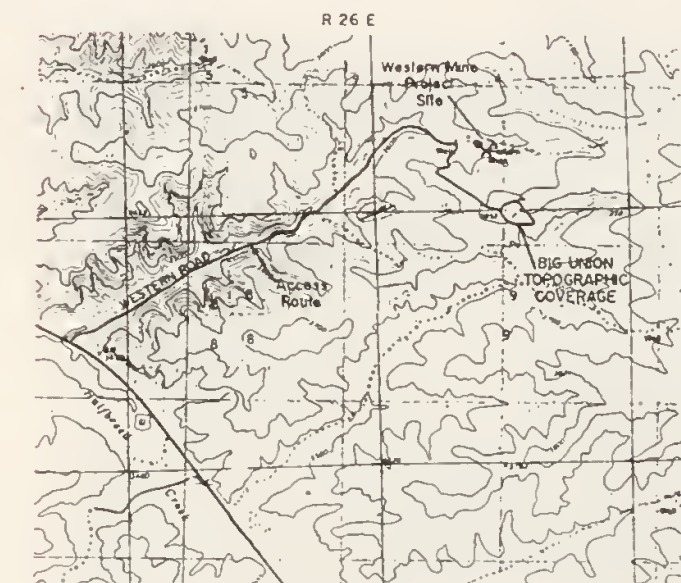
NOTE: MULCH WILL REPLACE EROSION CONTROL BLANKET WHEN SLOPES ARE SHALLOWER THAN 4H:1V.



STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

AS-BUILT DRAWING

SITE PLAN AND GENERAL LAYOUT

BIG UNION SITE  
 SECTIONS 4 AND 9, T7N, R26E  
 MUSSELSHELL COUNTY, MONTANA

STATE OF MONTANA DEPARTMENT OF STATE LANDS ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION	
DATE: January 1989 DRAWN BY: LNR CHECKED BY: APPROVED BY: NO. DATE BY:	SPECTRUM ENGINEERING Mining and Civil Engineers 3302 4th AVE NORTH BILLINGS, MONTANA SHEET NO. 3 of 3









## **ATTACHMENT 7**

### **PHOTOGRAPHS/SLIDES**

#### **PHOTO LISTING**

#### **PHOTO LOCATION MAPS**

#### **PHOTOS/SLIDES**





# SOUTHEAST PROJECT PHOTO & SLIDE DESCRIPTIONS

<u>ASSIGNED NUMBER</u>	<u>DATE TAKEN</u>	<u>SUBJECT OR COMMENTS</u>
EQUIPMENT USED ON PROJECT		
1	12-04-90	Case 580 backhoe loader with Lowe post digger.
2	11-29-90	Bobcat 610 with Lowe post hole auger.
3	12-03-90	John Deere 755 track loader.
4	12-06-90	Three hundred gallon water tank on Ford pickup.
5	01-06-90	Three inch water pump with a Briggs/Stratton engine.
6	01-06-90	1960 Ford flat bed truck.
7	01-06-90	1964 Ford six yard dump truck.
8	01-06-90	1980 Ford 3/4 ton pickup.
9	01-06-90	1977 Chevy 3/4 ton pickup.
WILSON		
10	11-22-89	Pre-construction view of the subsidence area.
11	12-03-90	Pre-construction view of the subsidence area.
12	12-03-90	View of the excavated mine workings at 58 feet.
13	12-04-90	Post-construction view of the subsidence area including fence.
14	11-22-89	Pre-construction view of the adit and coal slack pile.
15	12-03-90	Pre-construction view of the coal slack pile.
16	12-03-90	View of work in progress on coal slack pile.
17	12-04-90	Post-construction view of the coal slack pile including fence.
18	12-03-90	Pre-construction view of adit (no action taken).
19	12-03-90	Pre-construction view of inside of the subsidence area.
No. 2		
20	08-24-89	Aerial view of adits 1, 2, 3, 4 and 5.





# SOUTHEAST PROJECT PHOTO & SLIDE DESCRIPTIONS

<u>ASSIGNED NUMBER</u>	<u>DATE TAKEN</u>	<u>SUBJECT OR COMMENTS</u>
21	08-24-89	Aerial view of adits 1 and 2.
22	08-24-89	Aerial view of adits 3 and 4.
23	08-24-90	Aerial view of adits 1 and 2.
24	08-24-89	Pre-construction view of adit 2.
25	12-11-90	Pre-construction view of adit 1.
26	12-11-90	Post-construction view of adit 1 after closure.
27	12-11-90	Pre-construction view of adit 2.
28	12-11-90	View of backfilling adit 2.
29	12-11-90	Post-construction view of adit 2 after closure.
30	12-11-90	Pre-construction view of adit 3.
31	12-11-90	Post-construction view of adit 3 after closure.
32	12-11-90	Pre-construction view of adit 4.
33	12-11-90	Post-construction view of adit 4 after closure.
34	12-11-90	Pre-construction view of adit 5.
35	12-11-90	View of backfilling adit 5.
36	12-11-90	Post-construction view of adit 5.
FTY RANCH		
37	11-06-89	Pre-construction view of the subsidence area.
38	11-06-89	Pre-construction view of the subsidence area.
39	11-06-89	Pre-construction view of the subsidence area.
40	11-06-89	Pre-construction view of the subsidence area.
41	11-06-89	Pre-construction view of the subsidence area.
42	11-27-90	Pre-construction view of the closed adit.
43	11-27-90	Pre-construction view of the debris at the adit.



# SOUTHEAST PROJECT PHOTO & SLIDE DESCRIPTIONS

<u>ASSIGNED NUMBER</u>	<u>DATE TAKEN</u>	<u>SUBJECT OR COMMENTS</u>
44	11-27-90	Pre-construction view of subsidence 4.
45	11-27-90	Pre-construction view of subsidence 3.
46	11-27-90	Pre-construction view of subsidence 1.
47	11-27-90	Pre-construction view of subsidence 2.
48	11-27-90	View of work in progress at the subsidence area.
49	11-27-90	View of the excavated mine workings at void 4 down 25 feet.
50	11-27-90	View of the excavated mine workings at void 4.
51	11-27-90	View of the subsidence area after backfilling and regrading.
52	11-28-90	View of the crimping of hay mulch at the subsidence area.
53	11-28-90	Post-construction view of the site.
54	11-28-90	View of a good crimp job.

## BRYAN

55	11-07-89	Pre-construction view of the adit area.
56	11-07-89	Pre-construction view of the adit area.
57	11-07-89	Pre-construction view of the Bryan site.
58	11-07-89	Pre-construction view of the adit and the coal slack pile.
59	11-19-90	View of the coal car after being removed from the adit.
60	11-20-90	View of the adit once coal car were removed.
61	11-20-90	View of the adit after timber and the coal car were removed.
62	11-20-90	View of the adit after timber and the coal car were removed.
63	11-20-90	View of the burning debris from the adit.
64	11-26-90	Spreading of hay mulch at the Bryan site.
65	11-26-90	Post-construction view of the Bryan site.





# SOUTHEAST PROJECT PHOTO & SLIDE DESCRIPTIONS

<u>ASSIGNED NUMBER</u>	<u>DATE TAKEN</u>	<u>SUBJECT OR COMMENTS</u>
COAL CREEK		
66	11-26-90	Pre-construction view of subsidence 1.
67	11-26-90	View of the removal of topsoil from subsidence 1.
68	11-26-90	View of the excavation of the mine workings.
69	11-26-90	View of the excavation of the mine workings 24 feet in void.
70	11-26-90	Pre-construction view of subsidence 2.
71	11-26-90	Pre-construction view of the rails at the collapsed adit.
72	11-26-90	Post-construction view of the Coal Creek site.
GUSTAVSEN		
73	11-02-89	Pre-construction view of the adit area.
74	11-02-89	Pre-construction view of the adit area.
75	11-20-90	Pre-construction view of the adit.
76	11-20-90	View of backfilling the adit by hand.
77	11-20-90	View of backfilling the adit by hand.
78	1-02-89	Close-up view of the adit opening.
79	11-20-90	Pre-construction view of the adit opening.
80	11-20-90	View of the partially closed adit.
81	11-20-90	View of the partially closed adit.
82	11-20-90	View looking down on closed adit.
83	11-20-90	View of the closed adit with a rock on top.
84	11-20-90	View of the closed adit.
85	11-20-90	View of the closed adit.





# SOUTHEAST PROJECT PHOTO & SLIDE DESCRIPTIONS

<u>ASSIGNED NUMBER</u>	<u>DATE TAKEN</u>	<u>SUBJECT OR COMMENTS</u>
TRUSLER		
86	11-02-89	Pre-construction view of the Trusler adit.
87	11-29-90	Pre-construction view of the adit.
88	11-29-90	View of the closed adit.
JOPPA		
89	11-02-89	Aerial view of the Joppa site.
MEES		
90	11-02-89	Aerial view of the Mees site.
91	12-05-90	Pre-construction view of the adit opening.
92	12-05-90	Pre-construction view of the coal slack pile.
93	12-05-90	Pre-construction view of the earthen dam.
94	12-06-90	John Deere 755 track loader excavating the adit.
95	12-06-90	John Deere 755 track loader excavating the adit.
96	12-06-90	View of the snakes out of adit 2.
97	12-05-90	John Deere 755 track loader in adit 2.
98	12-05-90	View of the right side of adit 2.
99	12-05-90	Close-up view of JD track loader in adit 2.
100	12-05-90	View of backfilling adit 2.
101	12-05-90	View of the excavation of the left side of adit 1.
102	12-06-90	View of the excavation of adit 1 and 2.
103	12-06-90	View of the adits backfilled with coal slack.
104	12-06-90	View of the topsoil on the adit area.
105	12-06-90	View of the regraded borrow area.



# SOUTHEAST PROJECT PHOTO & SLIDE DESCRIPTIONS

<u>ASSIGNED NUMBER</u>	<u>DATE TAKEN</u>	<u>SUBJECT OR COMMENTS</u>
106	12-06-90	Post-construction view of the adit area.
107	12-06-90	View of the crimped hay mulch.
108	12-06-90	Rebuilding the earthen dam.
109	12-06-90	View of the water for compaction for the earth dam.
110	12-06-90	View of the face of the earth dam.
111	12-06-90	View of the completed earth dam.
112	12-05-90	Pre-construction view at the cabin site.

## MCKAY

113	11-02-89	Aerial view of the McKay Site
114	11-29-89	Pre-construction view of adit 1.
115	11-29-90	Pre-construction view of adit 1.
116	11-29-90	Pre-construction view of adit 3.
117	11-29-90	Pre-construction view of the coal slack area 2.
118	11-29-90	Pre-construction view of the coal slack area 1.
119	11-29-90	Pre-construction view of the coal slack area 1.
120	11-29-90	View of the artifacts found in adit 2.
121	11-29-90	View of the timbers from adit 2.
122	11-29-90	View of the timbers from adit 2.
123	11-29-90	View of 755 track loader in adit 2.
124	11-29-90	View of the timbers from adit 1.
125	11-30-90	Post-construction view of adit 1.
126	11-30-90	Post-construction view of adit 2.
127	11-30-90	Post-construction view of adit 3.
128	11-30-90	View of coal slack area with lime in place.





# SOUTHEAST PROJECT PHOTO & SLIDE DESCRIPTIONS

<u>ASSIGNED NUMBER</u>	<u>DATE TAKEN</u>	<u>SUBJECT OR COMMENTS</u>
129	11-30-90	View of spreading topsoil on coal slack pile 2.
130	11-30-90	View of regrading topsoil at the borrow area.
131	11-30-90	View of the revegetated adit access road.
132	11-30-90	View of the regraded topsoil borrow area.
133	11-30-90	View of the revegetated coal slack area 2.
134	11-30-90	View of crimping the hay mulch.
135	11-30-90	Post-construction view of the borrow area.
136	11-30-90	Post-construction view of coal slack pile 1.
137	11-30-90	John Deere 755 track loader at the McKay site.
138	11-30-90	Case 580 backhoe/loader at the McKay site.
KLEIN		
139	12-13-90	Pre-construction view of the washout of the creek ditches.
140	12-13-90	Pre-construction view of the washout of the creek ditches.
141	12-13-90	Pre-construction view of the washout of the creek ditches.
142	12-13-90	Pre-construction view of the washout of the creek ditches.
143	12-13-90	Pre-construction view of the washout of the creek ditches.
144	12-13-90	Pre-construction view of the washout of the creek ditches.
145	12-13-90	Pre-construction view of the creek ditch on the east side.
146	12-13-90	View of hauling borrow material to the check ditch.
147	12-13-90	View of crimping hay mulch on the check ditch.
148	12-13-90	View of placing erosion blanket in the creek ditch.
149	12-13-90	View with completed creek ditches.
150	12-13-90	View of the completed creek ditches on the east slope.
151	12-13-90	Watering down the erosion blanket on the creek ditch.





**SOUTHEAST PROJECT  
PHOTO & SLIDE DESCRIPTIONS**

<u>ASSIGNED NUMBER</u>	<u>DATE TAKEN</u>	<u>SUBJECT OR COMMENTS</u>
BIG UNION		
152	12-14-90	Placing of erosion control blanket on the coal slack pile.
153	12-14-90	View of the branches and timber placed on blanket to hold it in place.
154	12-14-90	Watering down the erosion control blanket.
155	12-14-90	View of the blanket and timber on the slope.
156	12-14-90	View of the blanket and timber on the slope.
157	12-14-90	View of the blanket and timber on the slope.





① PICTURE 1 SHOWS THE SUBSIDENCE LOOKING DOWNSTREAM FROM THE WEST.

② PICTURE 2 SHOWS THE SUBSIDENCE LOOKING UPSTREAM FROM THE EAST.

③ PICTURE 3 SHOWS THE COAL SLACK PILE LOCATED UP THE DRAINAGE FROM THE SUBSIDENCE. THIS PILE IS TO BE BURIED IN PLACE AND REVEGETATED.

CONSTRUCTION IS LIMITED TO  
THE AREA SHOWN ON THIS  
TOPOGRAPHIC MAP

VEHICLE TRAVEL WILL BE LIMITED  
TO ROUTES FLAGGED ON-SITE BY  
THE PROJECT ENGINEER.

**INSTALLED  
299 L FT FENCE**

**GATE**

58' VOID

**BORROW AREA**

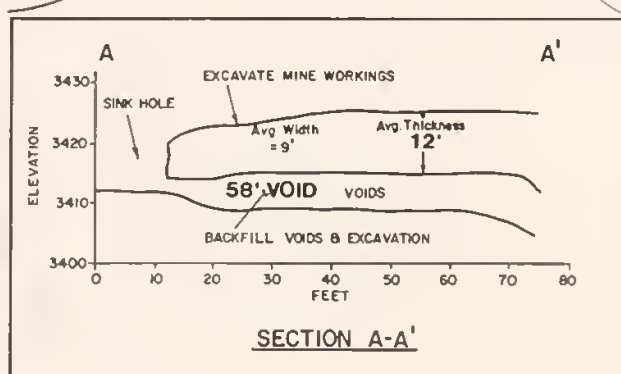
SALVAGE & REPLACE  
TOPSOIL

INSTALL F-4M FARM FENCE  
AS SHOWN

EXCAVATE MINE WORKINGS  
AND BACKFILL

SEED, FERTILIZE AND MULCH  
ALL DISTURBED AREAS

## BACKFILL SUBSIDENCE



## WORK DESCRIPTION

## SUBSIOENCE AREA

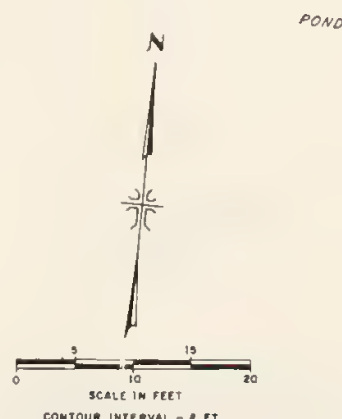
- STRIP AND STOCKPILE 4 INCHES OF TOPSOIL FROM THE BORROW AREA, AREAS OVER MINE VOIDS, AND THE SUBSIDENCE PIT.
- EXCAVATE THE UNDERGROUND MINE VOIDS, AS SHOWN.
- BACKFILL THE MINE VOIDS, EXCAVATIONS, AND SUBSIDENCE. USE STOCKPILED AND BORROW MATERIAL.
- PLACE TOPSOIL FROM THE STOCKPILES OVER THE SUBSIDENCE AND BORROW AREAS.
- REVEGETATE ALL DISTURBED AREAS.
- INSTALL 4-4M FARM FENCE, SINGLE AND DOUBLE PANELS, AND GATE, AS SHOWN.

COAL SLACK PILE





- STRIP AND STOCKPILE 4 INCHES OF TOPSOIL FROM THE BORROW AND COAL SLACK BURIAL AREAS.
- REGRADE THE COAL SLACK IN PLACE BLENDING THE CONTOURS IN WITH SURROUNDING TOPOGRAPHY.
- NEUTRALIZE THE COAL SLACK AREA.
- PLACE TOPSOIL FROM THE BORROW AREA AND STOCKPILE OVER THE COAL SLACK AREA.
- REVEGETATE ALL DISTURBED AREAS.
- INSTALL 4-FAM FARM FENCE, SINGLE AND DOUBLE PANELS, AND, GATE.

LANDOWNER AND CONTACT  
SECTION 5, T2N, R38E

LEE WILSON  
P.O. BOX 895  
HYSHAM, MT. 59083  
PHONE (406) 342-5303



LEGEND

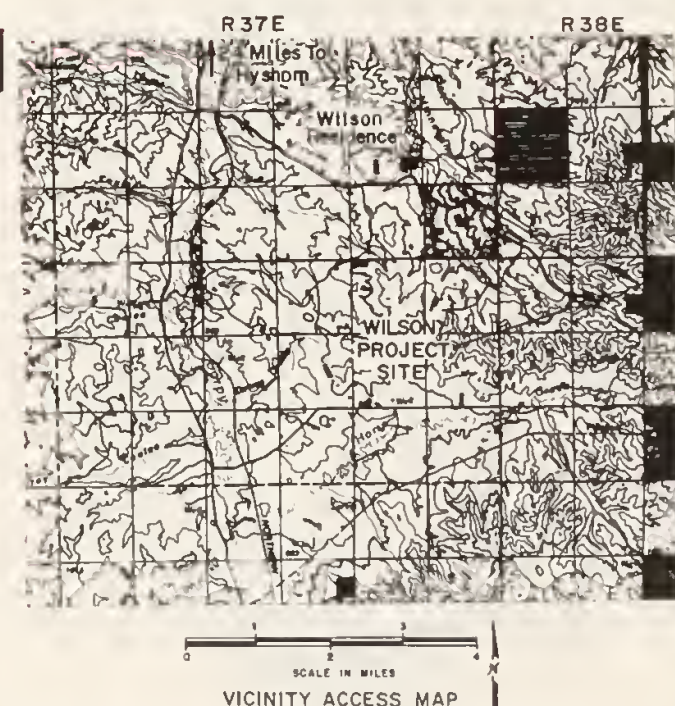
- |   |            |   |   |
|---|------------|---|---|
| — 3410 —  | CONTOUR    |  | PICTURE NUMBER<br>AND ORIENTATION       |
|  | COAL SLACK |  | SUBSIDIARY PIT (SP<br>NUMBER (8 DEPTH)) |
| — ... —   | DRAINAGE   |  | OPEN ADIT                               |

## NOTICE

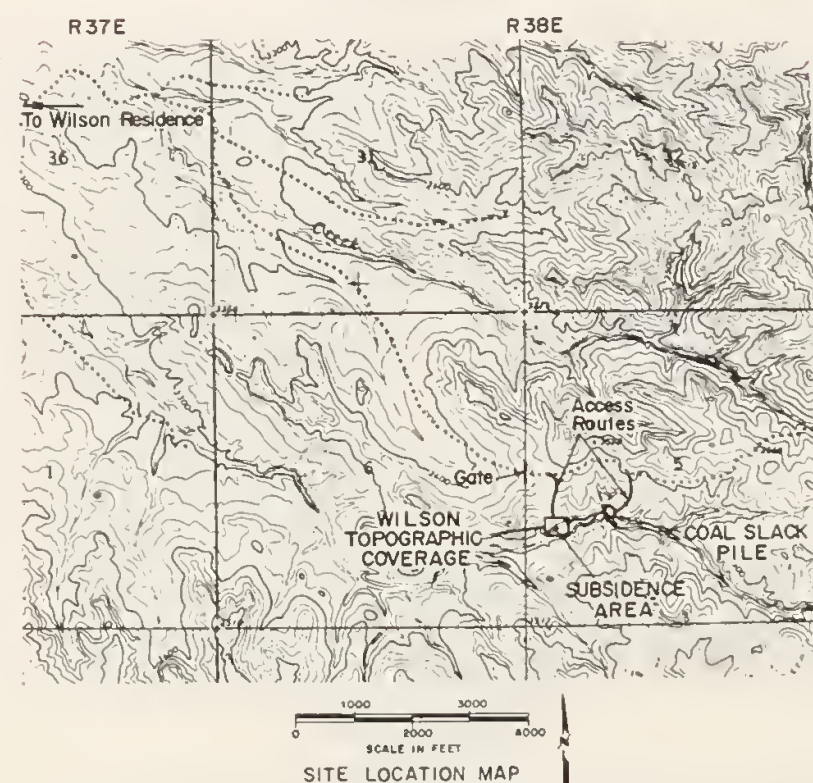
AN ABANDONED COAL MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.



STATE LOCATION MAP PROJECT SITE



VICINITY ACCESS MAP



### SITE LOCATION MAP

## SITE PLAN AND GENERAL LAYOUT

## WILSON SITE - PHOTO INDEX

SECTION 5, T2N, R38E  
TREASURE COUNTY, MONTANA

STATE OF MONTANA  
DEPARTMENT OF STATE LANDS  
ABANOO NEO MINE RECLAMATION BUREAU, RECLAMATION DIVISION

**SPECTRUM ENGINEERING**  
Mining and Civil Engineers

3302 4th AVE NORTH  
BILLINGS, MONTANA

DATE August 1990	
DRAWN BY: DLO	
APPROVED BY: GWR	
REVISIONS	
NO	DATE
SHEET NO 2 of	

## AS-BUILT DRAWING

WORK SUMMARY TABLE			
ITEM	DESCRIPTION	ACTION	QUANTITY
TOPSOIL	SUBSIDENCES/BORROW AREAS	STRIP AND STOCKPILE	100 CY
	FROM BORROW AREA	DIRECT PLACE	90 CY
TOTAL (EST.)	STOCKPILES	PLACE FROM STOCKPILE	<u>100 CY</u> 290 CY
SUBSIDENCE	SEE TOPOGRAPHIC MAP	BACKFILL	80 CY
WATER	BACKFILL	FOR COMPACTION	5.0 KGAL
	ROADS AND OTHER AREAS	DUST SUPPRESSION	<u>2.0 KGAL</u> 7.0 KGAL
MINE WORKINGS	SEE MAP	EXCAVATE	400 CY
		BACKFILL	400 CY
		BACKFILL WITH BORROW	<u>100 CY</u> 900 CY
COAL SLACK AREA	REGRADED COAL SLACK PILE	REGRADE IN PLACE	60 CY
		NEUTRALIZE AT 5 TONS	0.10 ACRES
		PER ACRE PURE CaCO <sub>3</sub>	(0.5 TONS)
DISTURBED AREAS	COAL SLACK AREA	REVEGETATE	0.10 ACRES
	SUBSIDENCE AND BORROW AREAS	REVEGETATE	0.19 ACRES
		REVEGETATE	<u>0.25 ACRES</u>
TOTAL (EST.)			0.54 ACRES
REVEGETATION OF	FERTILIZER AT 92.5 LBS	APPLY	50 POUNDS
0.54 ACRES	SEED AT 23 LBS PLS	DRILL SEED	12 4 LB PLS
	HAY MULCH AT 3,000 LBS	SPREAD AND CRIMP	<u>1,620 POUNDS</u>
FENCE	TYPE F-4M FARM FENCE	INSTALL	<b>AS-BUILT</b> <u>488 L FT</u> — 530 L FT
	SINGLE PANELS	INSTALL	2 EACH
	DOUBLE PANELS	INSTALL	<b>8 EACH</b> — 9 EACH
	TYPE F-4 FARM FENCE GATES	INSTALL	32 L FT



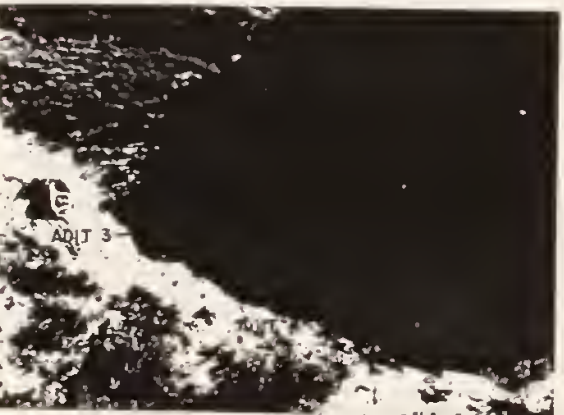




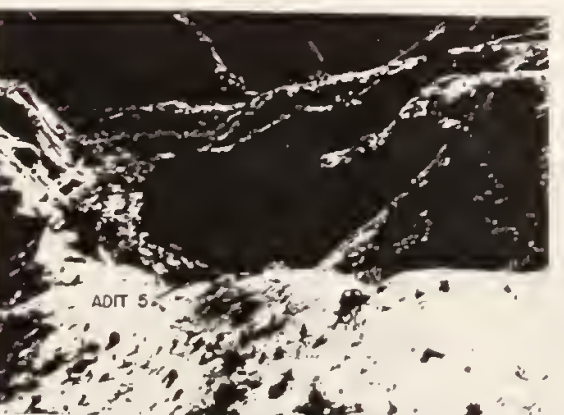
① PICTURE 1 SHOWS AN AERIAL VIEW OF THE FIVE ADITS.



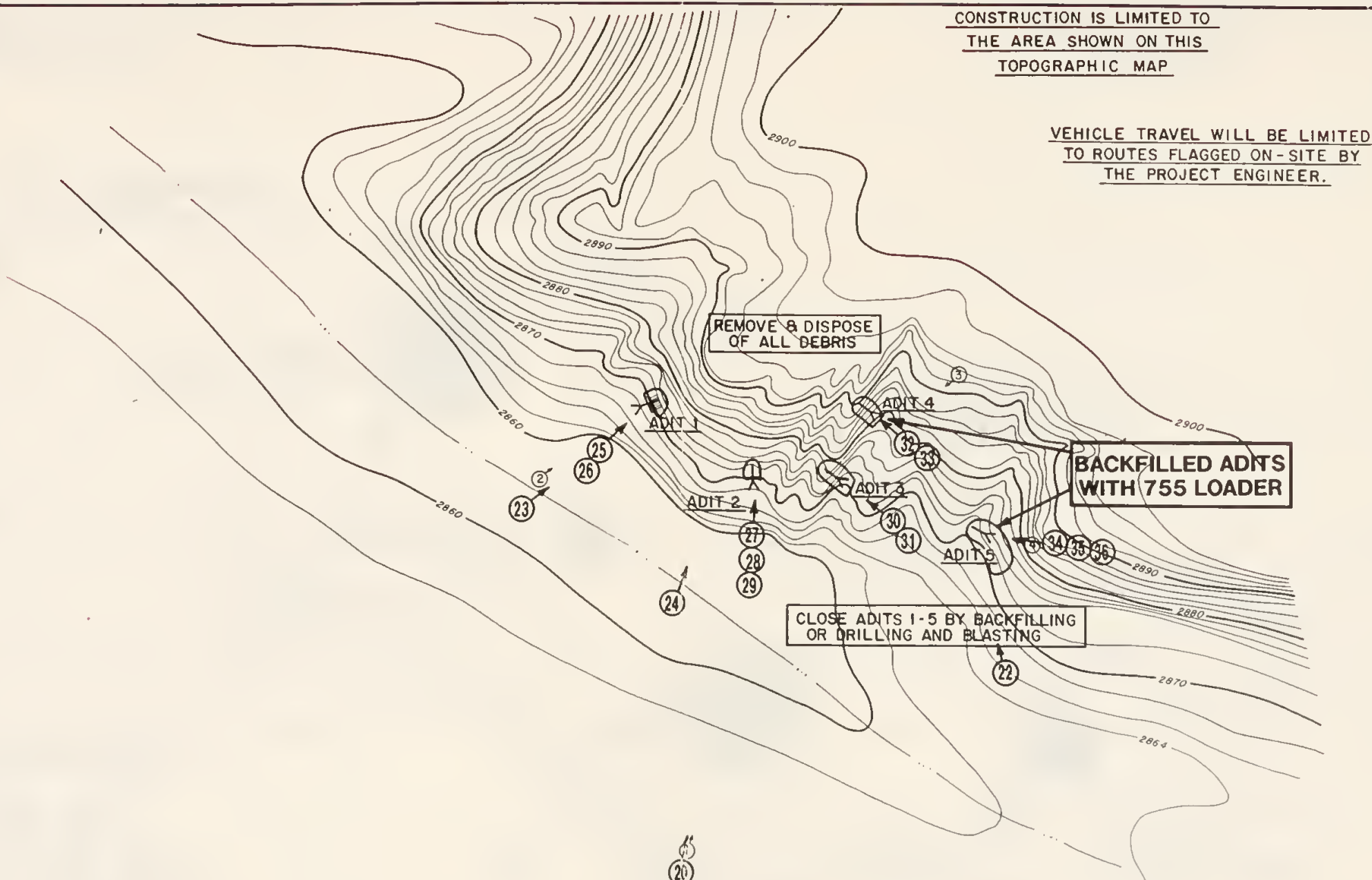
② PICTURE 2 SHOWS ADIT 1. THE ADIT IS OPEN AND DEBRIS IS PRESENT.



③ PICTURE 3 SHOWS ADITS 3 AND 4



④ PICTURE 4 SHOWS ADIT 5.



#### WORK DESCRIPTION

- REMOVE AND DISPOSE OF ALL DEBRIS.
- CLOSE ADITS 1 THROUGH 5. THE CONTRACTOR MAY EMPLOY BACKFILLING OR DRILLING AND BLASTING.

Vertical Datum Based On Interpolation Of USGS 7 1/2' Quadrangle CROW ROCK SE, MT. Topography Prepared From Ground Survey Conducted In 1989 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked.

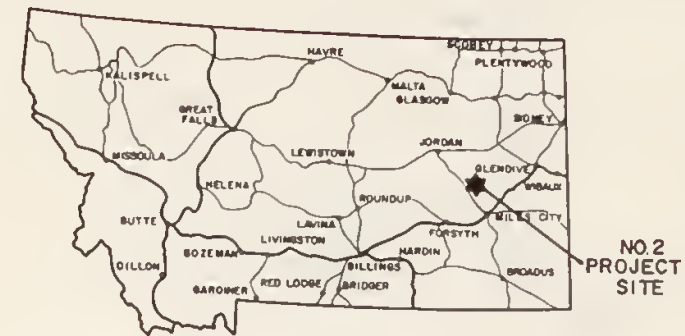
ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.

#### LANDOWNER AND CONTACT

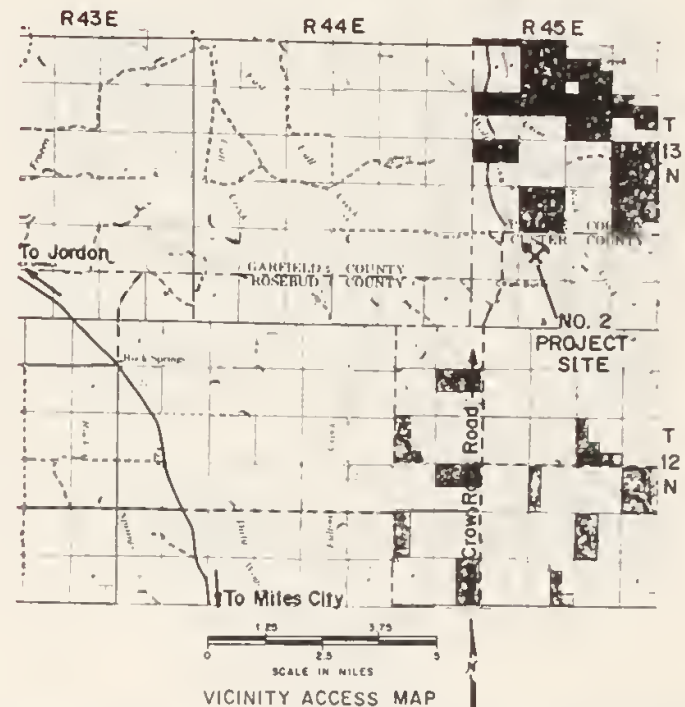
GLACIER PARK COMPANY  
70 JAMES L. BISHOP  
519 MAIN STREET  
P.O. BOX 579  
MILES CITY, MT. 59301  
PHONE (406) 232-1274

#### NOTICE

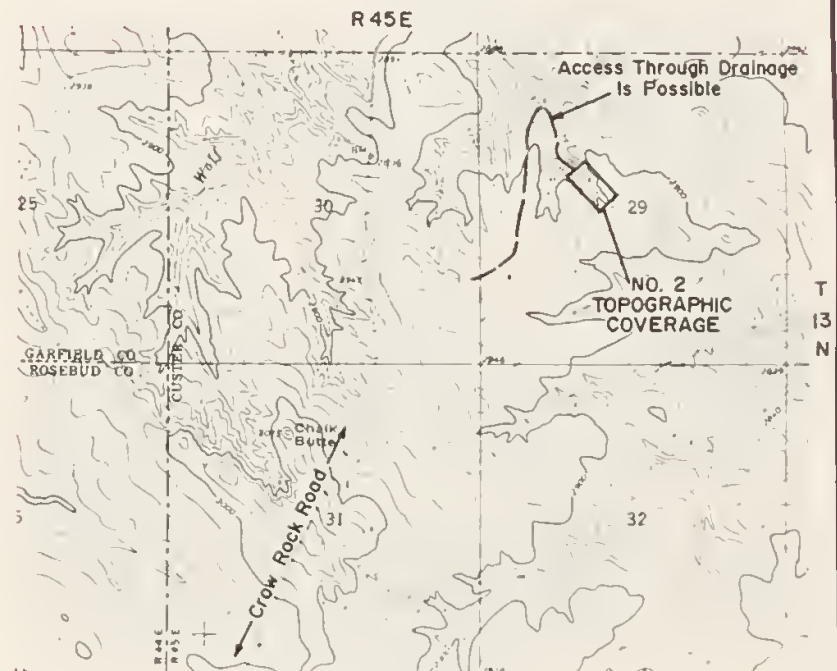
AN ABANDONED COAL MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.



#### STATE LOCATION MAP



#### VICINITY ACCESS MAP



#### SITE LOCATION MAP

#### SITE PLAN AND GENERAL LAYOUT

#### NO. 2 SITE - PHOTO INDEX

SECTION 29, T13N, R45E  
CUSTER COUNTY, MONTANA

STATE OF MONTANA  
DEPARTMENT OF STATE LANDS  
ABANDONEE MINE RECLAMATION BUREAU, RECLAMATION DIVISION

SPECTRUM ENGINEERING  
Mining and Civil Engineers

3302 4TH AVE NORTH  
BILLINGS, MONTANA

DATE August 1990  
DRAWN BY: DLD  
APPROVED BY: GWR  
REVISIONS  
NO. DATE BY  
SHEET NO. 3 of 11

AS-BUILT DRAWING



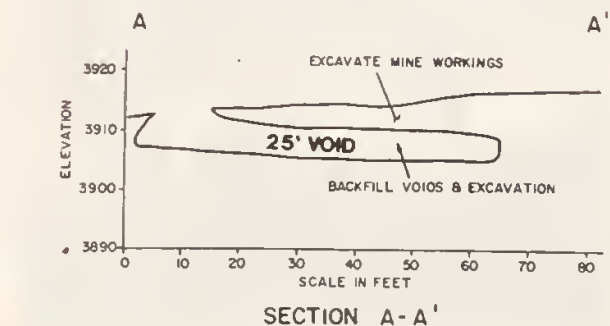




1 PICTURE 1 IS AN AERIAL VIEW OF THE ADIT AND SUBSIDENCES.



2 PICTURE 2 SHOWS THE TIMBERS AND DEBRIS AT THE ADIT



WORK SUMMARY TABLE			
ITEM	DESCRIPTION	ACTION	QUANTITY
TOPSOIL	SUBSIDENCES/BORROW AREA	STRIP AND STOCKPILE	130 CY
	STOCKPILES	PLACE FROM STOCKPILE	130 CY
TOTAL (EST.)			260 CY
SUBSIDENCES			
SP 1	SEE TOPOGRAPHIC MAP	BACKFILL	25 CY
SP 2	SEE TOPOGRAPHIC MAP	BACKFILL	20 CY
SP 3	SEE TOPOGRAPHIC MAP	BACKFILL	55 CY
SP 4	SEE TOPOGRAPHIC MAP	BACKFILL	50 CY
TOTAL (EST.)			150 CY
WATER	BACKFILL	FOR COMPACTION	S.S KGAL
	ROADS AND OTHER AREAS	DUST SUPPRESSION	2.5 KGAL
			8.0 KGAL
MINE WORKINGS	SEE MAP	EXCAVATE	290 CY
		BACKFILL	290 CY
		BACKFILL WITH BORROW	110 CY
			690 CY
DISTURBED AREAS	SUBSIDENCE AREA	REVEGETATE	0.10 ACRES
	BORROW AREA	REVEGETATE	0.15 ACRES
TOTAL (EST.)			0.25 ACRES
REVEGETATION OF 0.25 ACRES	FERTILIZER AT 92.5 LBS SEED AT 23 LBS PLS HAY MULCH AT 3,000 LBS	APPLY DRILL SEED SPREAD AND CRIMP	23 POUNDS 5.8 LB PLS 750 POUNDS
FENCE	TYPE F-4M FARM FENCE SINGLE PANELS DOUBLE PANELS TYPE F-4 FARM FENCE GATES	INSTALL INSTALL INSTALL	400 L FT 526 L FT 2 EACH 1 EACH 6 EACH 4 EACH 16 L FT

LANDOWNER AND CONTACT  
SECTION 13, T 8 S, R 46 E  
  
LAWRENCE YONKEE  
FTY RANCH, BOX 6288  
SHERIDAN, WYO. 82801  
PHONE: (307) 674-7451 (W)  
(307) 672-5084 (H)  
(406) 784-2721 (Ranch)  
LYNN McINTYRE (Ranch Manager)  
(406) 784-2728

AS-BUILT

- WORK DESCRIPTION
- REMOVE AND DISPOSE OF ALL DEBRIS.
  - STRIP AND STOCKPILE 4 INCHES OF TOPSOIL FROM THE BORROW AREA, AREAS OVER MINE VOIDS, AND THE SUBSIDENCE PITS.
  - EXCAVATE THE UNDERGROUND MINE VOIDS.
  - BACKFILL THE MINE VOIDS, EXCAVATIONS, AND SUBSIDENCE. USE STOCKPILED AND BORROW MATERIAL.
  - PLACE TOPSOIL FROM THE STOCKPILES OVER THE SUBSIDENCE AND BORROW AREAS.
  - REVEGETATE ALL DISTURBED AREAS.
  - INSTALL F-4M FARM FENCE, SINGLE AND DOUBLE PANELS, AND GATE, AS DIRECTED.

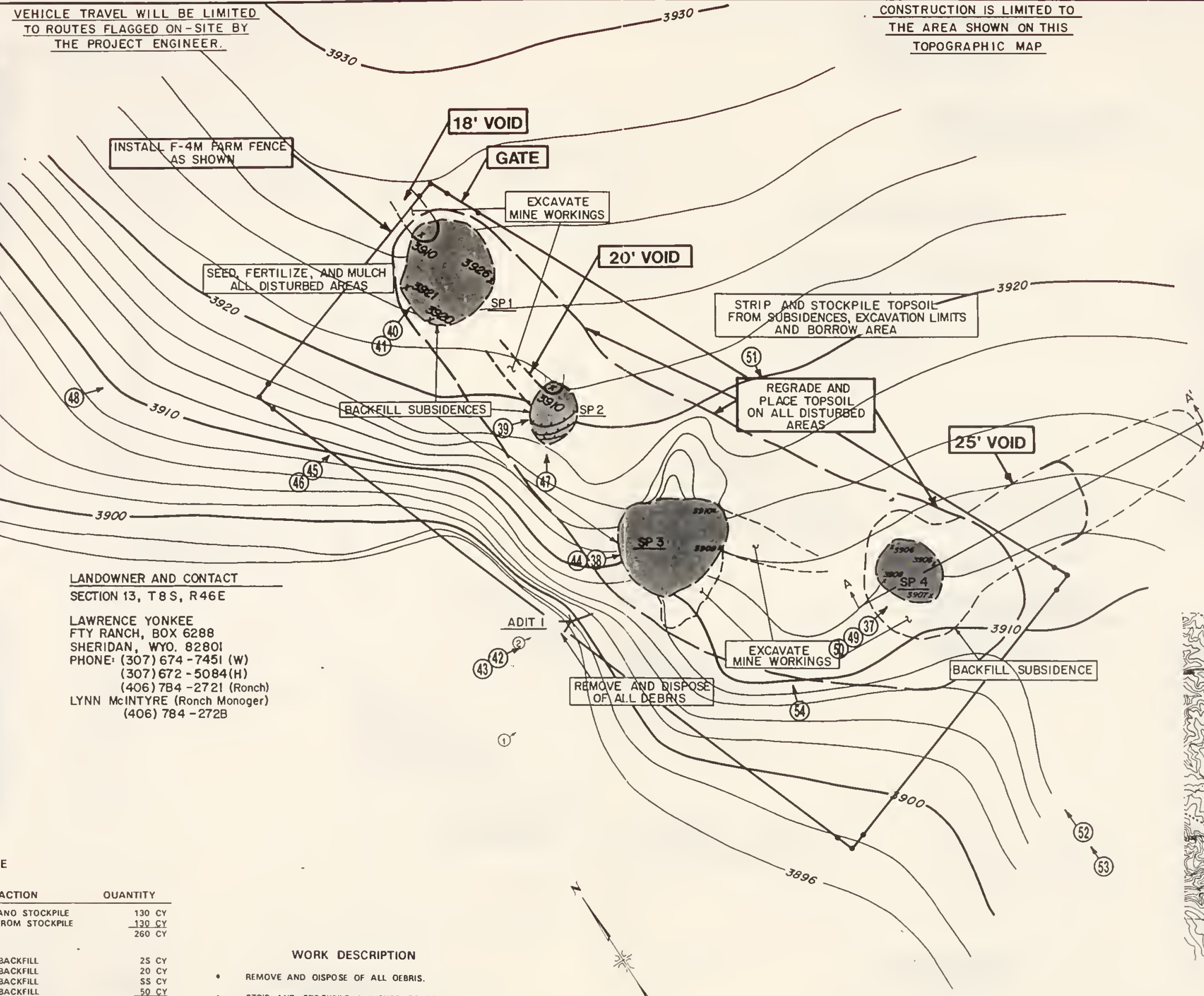
ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY



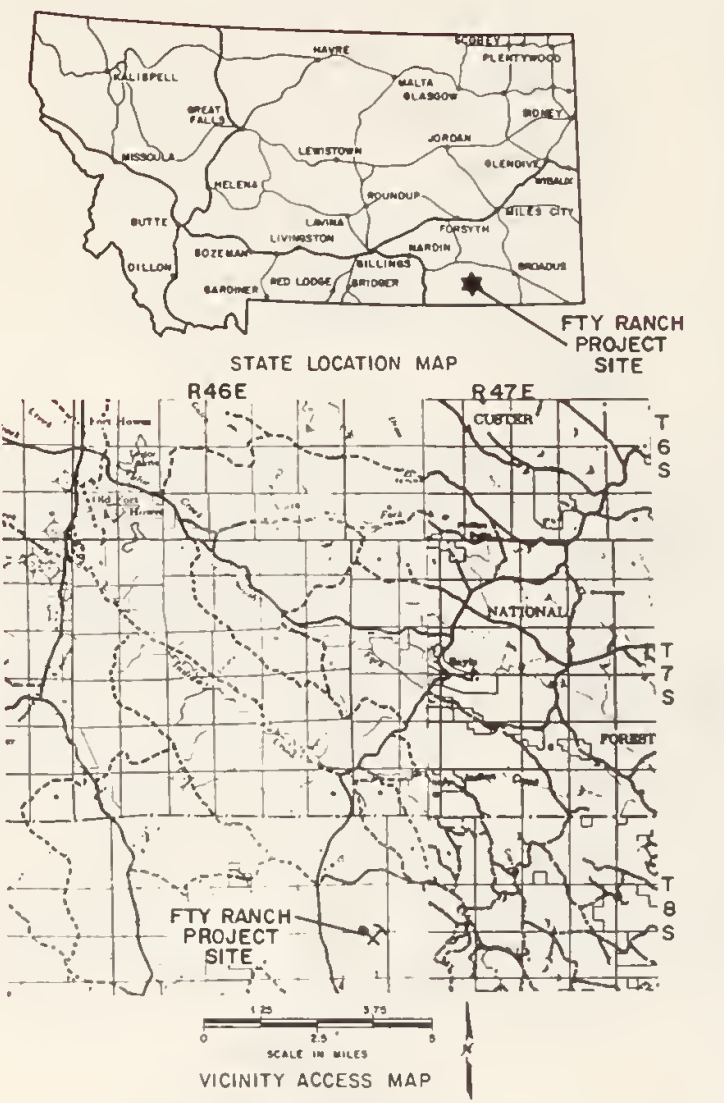
Vertical Datum Based On Interpolation Of USGS 7 1/2' Quadrangle: REANUS CONE, MT. Topography Prepared From Ground Survey Conducted In 1989 By Spectrum Engineering Using A Plane Table And Alidade This Topography Is Of Reconnaissance Class And Has Not Been Field Checked.

- LEGEND
- 3900 — CONTOUR
  - COAL SLACK
  - DRAINAGE
  - ① PICTURE NUMBER AND ORIENTATION
  - SP 1 SUBSIDENCE PIT (SP) NUMBER (8 DEPTH)
  - OPEN ADIT

NOTICE  
AN ABANDONEED COAL MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.



CONSTRUCTION IS LIMITED TO THE AREA SHOWN ON THIS TOPOGRAPHIC MAP



SITE PLAN AND GENERAL LAYOUT

FTY RANCH SITE - PHOTO INDEX  
SECTION 13, T 8 S, R 46 E  
POWDER RIVER COUNTY, MONTANA

STATE OF MONTANA  
DEPARTMENT OF STATE LANDS  
ABANDONEED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

SPECTRUM ENGINEERING  
Mining and Civil Engineers

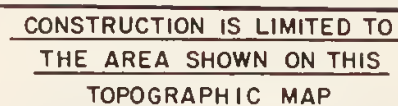
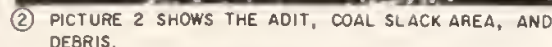
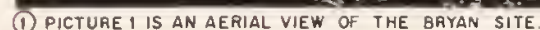
3302 4th AVE NORTH  
BILLINGS, MONTANA

DATE: August 1990  
DRAWN BY: OLO  
APPROVED BY: GWR  
REVISIONS: NO DATE BY  
SHEET NO 4 of 11









VEHICLE TRAVEL WILL BE LIMITED  
TO ROUTES FLAGGED ON-SITE BY  
THE PROJECT ENGINEER.

## FENCE ADDED TO SITE

969 L.F. Type F-4M Farm Fence  
16 L.F. Gate  
5 Double Panel  
3 Single Panel

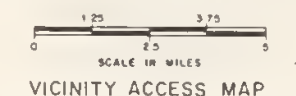
LANDOWNER AND CONTACT  
SECTION 18, T3S, R46E

CUSTER NATIONAL FOREST  
BILLINGS, MT.

CUSTER NATIONAL FOREST  
BILLINGS, MT.  
% ASHLAND RANGER DISTRICT  
CUSTER NATIONAL FOREST  
JOHN MACIVOR, DISTRICT RANGER  
P.O. BOX 168  
ASHLAND, MT. 59003  
PHONE (406) 784-2344





### PROJECT SITE






### WORK DESCRIPTION

- REMOVE TIMBERS AND STRUCTURES FROM THE ADIT
- REMOVE AND DISPOSE OF ALL DEBRIS.
- CLOSE THE ADIT USING AN EARTH OR ROCK PLUG.
- STRIP AND STOCKPILE TOPSOIL FROM THE BORROW AREA.
- BACKFILL ADIT 1 WITH EXCESS COAL SLACK AND BORROW MATERIAL TO RECLAMATION CONTOURS.
- REGRADE THE COAL SLACK AREA SMOOTH.
- NEUTRALIZE THE COAL SLACK AREA.
- PLACE 6 INCHES OF TOPSOIL MATERIAL FROM THE BORROW AREA OVER THE COAL SLACK AND ADIT AREAS.
- PLACE TOPSOIL FROM THE STOCKPILE OVER THE BORROW AREA.
- REVEGETATE ALL DISTURBED AREAS.

LEGENO

— 3220 — CONTOUR  
 COAL SLA  
 DRAINAGE

 PICTURE NUMBER  
AND ORIENTATION  
 UNDERGROUND  
MINE WORKINGS  
 OPEN ADIT

Vertical Datum Based On Interpolation Of  
USGS 7 1/2' Quadrangle: COLEMAN DRAW, MT.  
Topography Prepared From Ground Survey  
Conducted In 1989 By Spectrum Engineering  
Using A Plane Table And Alidade. This  
Topography Is Of Reconnaissance Class  
And Has Not Been Field Checked

*NOTICE*

AN ABANDONED COAL MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.

## AS-BUILT DRAWING

## SITE PLAN AND GENERAL LAYOUT

## BRYAN SITE - PHOTO INDEX

SECTION 18, T3S, R46E  
POWDER RIVER COUNTY, MONTANA

STATE OF MONTANA

DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

**SPECTRUM ENGINEERING**  
Mining and Civil Engineers

3302 4th AVE NORTH  
BILLINGS, MONTANA

DATE August 1990

DRAWN BY: DLO

APPROVED BY GWR

REVISIONS	
NO	DATE


SHEET NO 5 of 5







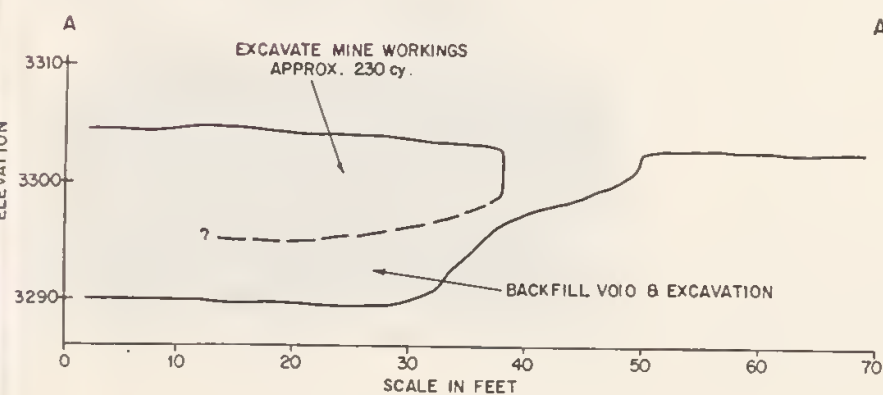
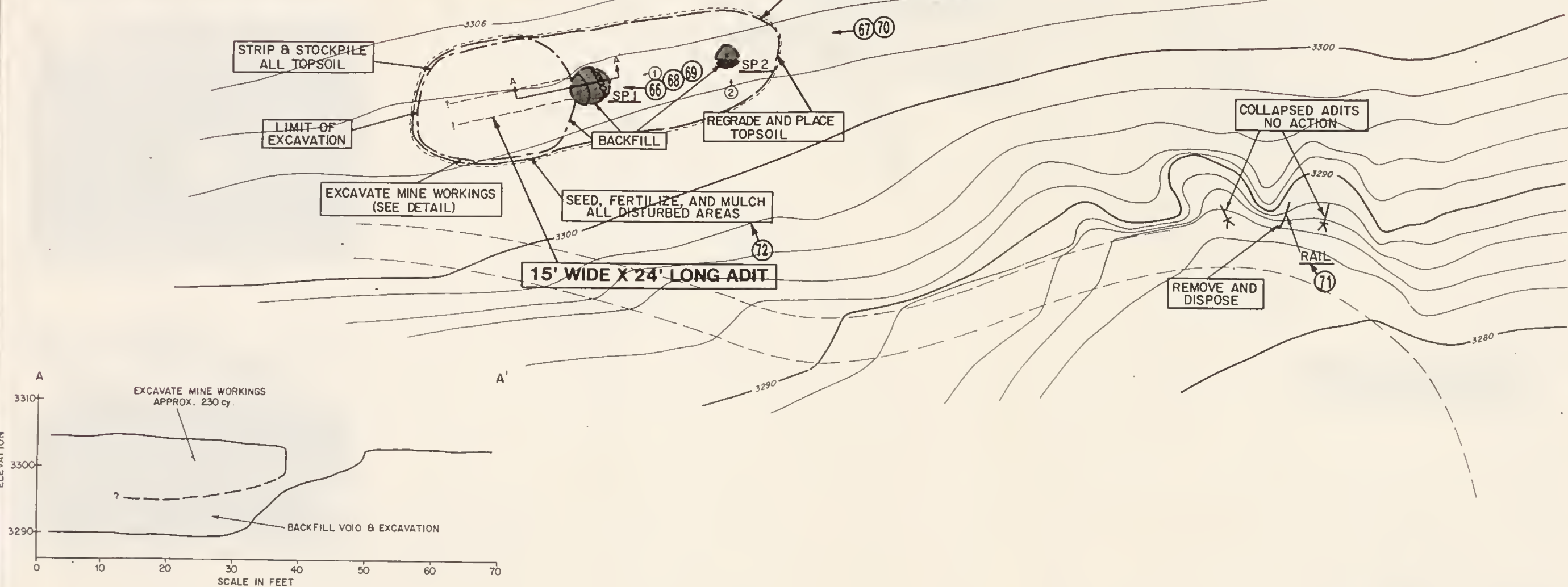
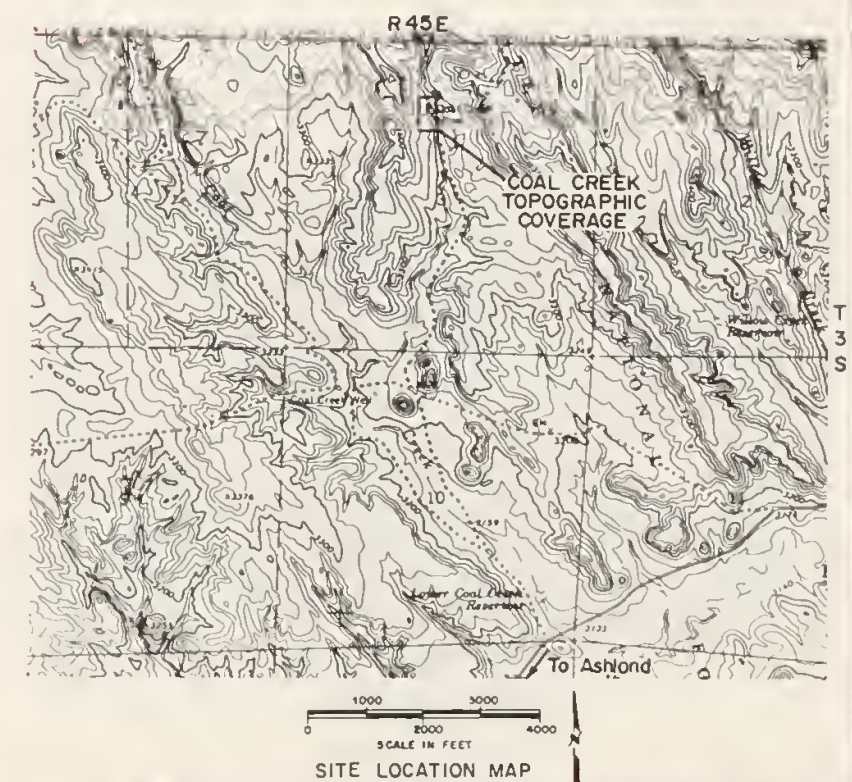
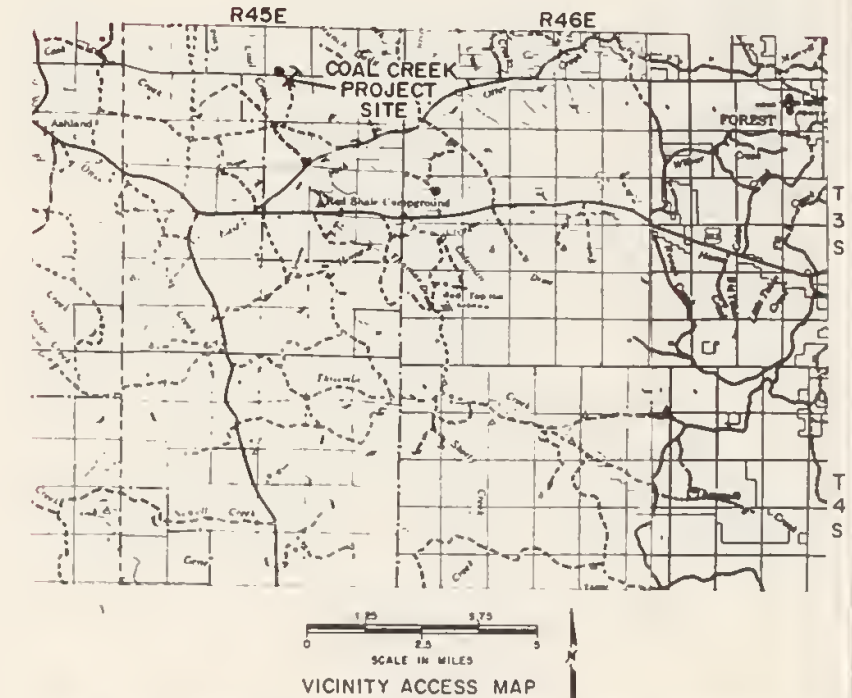
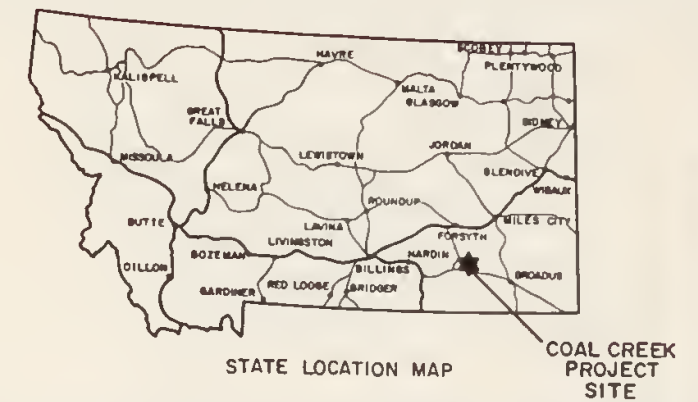
① PICTURE 1 SHOWS SUBSISTENCE PIT 1.



② PICTURE 2 SHOWS SP-2.

CONSTRUCTION IS LIMITED TO  
THE AREA SHOWN ON THIS  
TOPOGRAPHIC MAP

VEHICLE TRAVEL WILL BE LIMITED  
TO ROUTES FLAGGED ON-SITE BY  
THE PROJECT ENGINEER.



SECTION A-A'

WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
TOPSOIL	SUBSIDENCES/BORROW AREA STOCKPILES	STRIP AND STOCKPILE PLACE FROM STOCKPILE	40 CY 40 CY 80 CY
TOTAL (EST.)			
SUBSIDENCES			
SP 1	SEE TOPOGRAPHIC MAP	BACKFILL	15 CY
SP 2	SEE TOPOGRAPHIC MAP	BACKFILL	5 CY
TOTAL (EST.)			20 CY
WATER	BACKFILL ROADS AND OTHER AREAS	FOR COMPACTION DUST SUPPRESSION	3.0 KGAL 1.0 KGAL 4.0 KGAL
MINE WORKINGS	SEE MAP	EXCAVATE BACKFILL BACKFILL WITH BORROW	230 CY 230 CY 30 CY 480 CY
DISTURBED AREAS	SUBSISTENCE AND BORROW AREA	REVEGETATE	0.10 ACRES
TOTAL (EST.)			
REVEGETATION OF 0.10 ACRES	FERTILIZER AT 92.5 LBS SEED AT 23 LBS PLS HAY MULCH AT 3,000 LBS	APPLY DRILL SEED SPREAD AND CRIMP	9 POUNDS 2.3 LB PLS 300 POUNDS

WORK DESCRIPTION

- REMOVE RAIL FROM THE COLLAPSED ADIT.
- DISPOSE OF ALL DEBRIS.
- STRIP AND STOCKPILE 4 INCHES OF TOPSOIL FROM THE BORROW AREA, AREAS OVER MINE VOIDS, AND THE SUBSISTENCE PITS.
- EXCAVATE THE UNDERGROUND MINE VOIDS.
- BACKFILL THE MINE VOIDS, EXCAVATIONS, AND SUBSIDENCES. USE STOCKPILED AND BORROW MATERIAL.
- PLACE TOPSOIL FROM THE STOCKPILES OVER THE SUBSIDENCE AND BORROW AREAS.
- REVEGETATE ALL DISTURBED AREAS.

Vertical Datum Based On Interpolation Of  
USGS 7 1/2' Quadrangle: WILLOW CROSSING, MT  
Topography Prepared From Ground Survey  
Conducted In 1989 By Spectrum Engineering  
Using A Plane Table And Alidade This  
Topography Is Of Reconnaissance Class  
And Has Not Been Field Checked

ADDITIONAL INFORMATION PERTAINING TO THIS  
SITE MAY EXIST IN THE DEPARTMENT OF STATE  
LANDS' FILES OR AT SPECTRUM ENGINEERING'S  
OFFICE. THIS MATERIAL IS AVAILABLE FOR  
REVIEW BY ANY INTERESTED PARTY.

- LEGEND
- 3300 — CONTOUR
  - COAL SLACK
  - ORAINAGE
  - ① → PICTURE NUMBER AND ORIENTATION
  - SP 1 SUBSISTENCE PIT (SP) NUMBER (B DEPTH)
  - OPEN ADIT

LANDOWNER AND CONTACT  
SECTION 3, T3S, R45E

GLACIER PARK COMPANY  
ATTN: JIM BISHOP  
P.O. BOX 579  
MILES CITY, MT. 59301  
PHONE (406) 232-1274

NOTICE

AN ABANDONED COAL MINE UNDERLIES THIS SITE.  
MANY POTENTIAL HAZARDS EXIST. THE EXTENT  
OF THESE HAZARDS IS NOT FULLY KNOWN.  
CONTRACTORS AND OTHER PERSONS WORKING AT  
THE SITE SHALL APPRISE THEMSELVES OF THE  
CONDITIONS AND TAKE WHATEVER STEPS ARE  
DEEMED NECESSARY TO INSURE SAFETY WHILE  
PERFORMING THEIR DUTIES.

AS-BUILT DRAWING

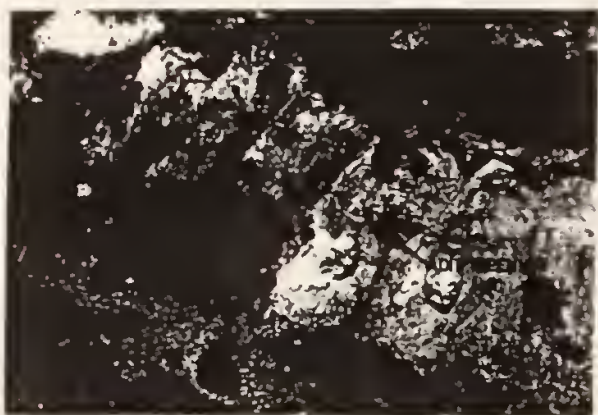
SITE PLAN AND GENERAL LAYOUT	
COAL CREEK SITE - PHOTO INDEX	
SECTION 3, T3S, R45E	
POWDER RIVER COUNTY, MONTANA	
STATE OF MONTANA	
DEPARTMENT OF STATE LANDS	
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION	
SPECTRUM ENGINEERING	
Mining and Civil Engineers	
3302 4th AVE NORTH	
BILLINGS, MONTANA	
DATE	August 1990
DRAWN BY	DLO
APPROVED BY	GWR
NO.	REVISIONS
DATE	BY
SHEET NO. 6 of 11	



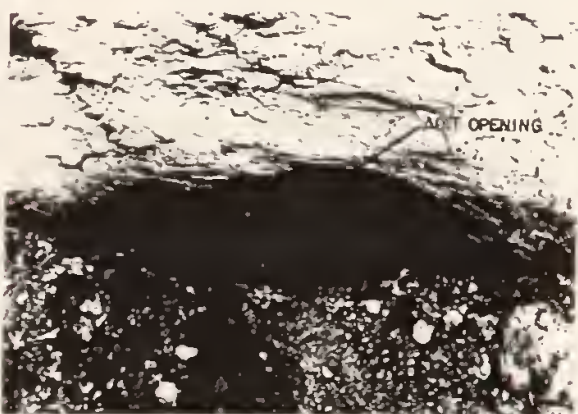




① PICTURE 1 SHOWS THE ABANDONED RANCH HOUSE AND SHOP. THE ADIT IS TO THE LEFT OF THE HOUSE AND SHOP.



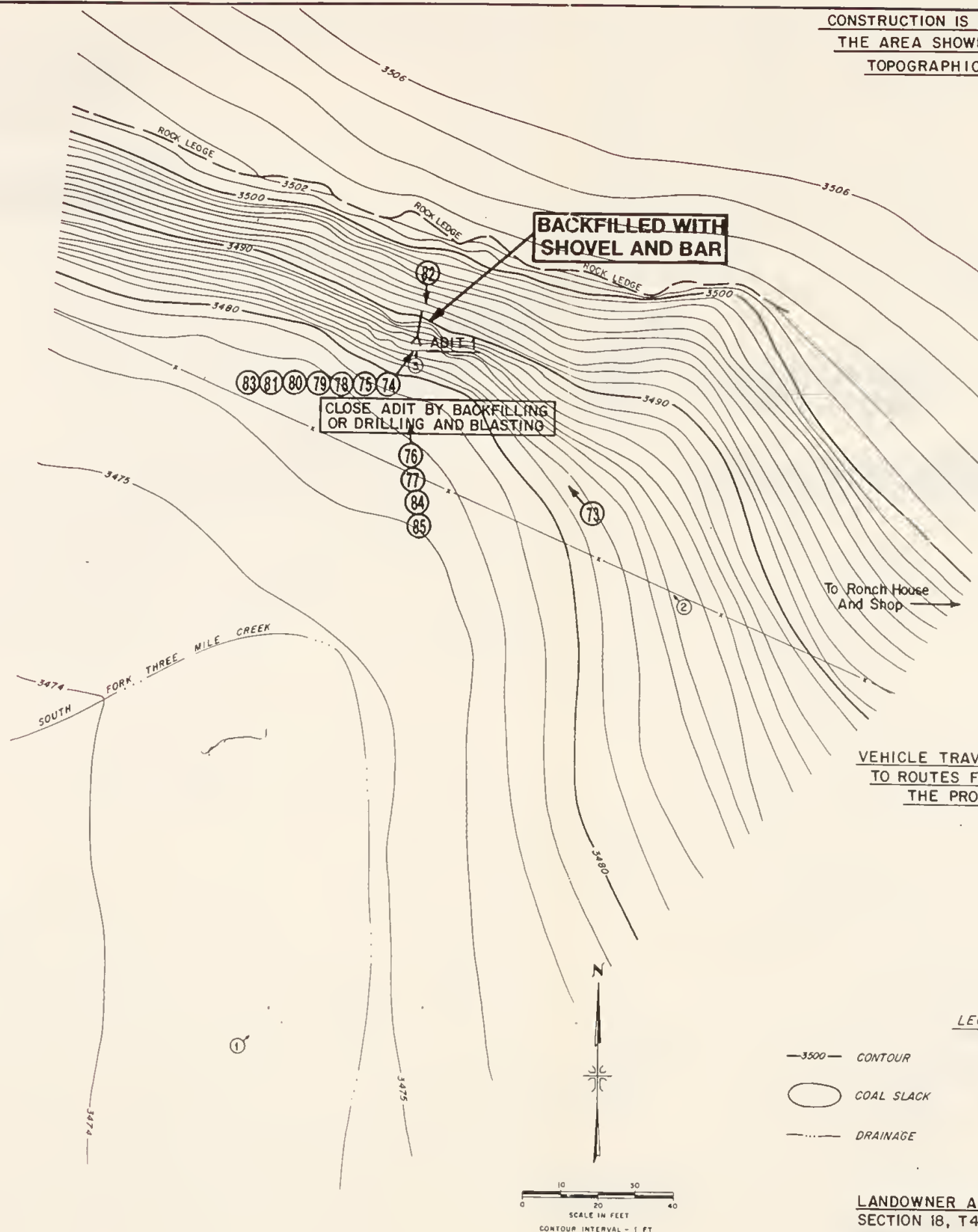
② PICTURE 2 IS AN AERIAL VIEW OF THE OPEN ADIT



③ PICTURE 3 IS A CLOSE-UP OF THE ADIT OPENING. WORKINGS WIDEN AND DEEPEN INSIDE.

#### WORK DESCRIPTION

- CLOSE ADIT 1. THE CONTRACTOR MAY EMPLOY BACKFILLING OR DRILLING AND BLASTING.



CONSTRUCTION IS LIMITED TO  
THE AREA SHOWN ON THIS  
TOPOGRAPHIC MAP

VEHICLE TRAVEL WILL BE LIMITED  
TO ROUTES FLAGGED ON-SITE BY  
THE PROJECT ENGINEER.

LANDOWNER AND CONTACT  
SECTION 18, T4S, R47E

TRUSLER, INC.  
W.W. BILL TRUSLER  
P.O. BOX 306  
ASHLAND, MT. 59003  
PHONE (406) 784-2337

#### LEGEND

- 3500 — CONTOUR
- COAL SLACK
- DRAINAGE
- ① PICTURE NUMBER AND ORIENTATION
- SP1 SUBSIDIARY PIT (SP) NUMBER (8 DEPTH)
- OPEN ADIT

Vertical Datum Based On Interpolation Of  
USGS 7 1/2' Quadrangle THREE MILE BUTTE, MT  
Topography Prepared From Ground Survey  
Conducted In 1939 By Spectrum Engineering  
Using A Plane Table And Alidade This  
Topography Is Of Reconnaissance Class  
And Has Not Been Field Checked

ADDITIONAL INFORMATION PERTAINING TO THIS  
SITE MAY EXIST IN THE DEPARTMENT OF STATE  
LANDS' FILES OR AT SPECTRUM ENGINEERING'S  
OFFICE THIS MATERIAL IS AVAILABLE FOR  
REVIEW BY ANY INTERESTED PARTY.

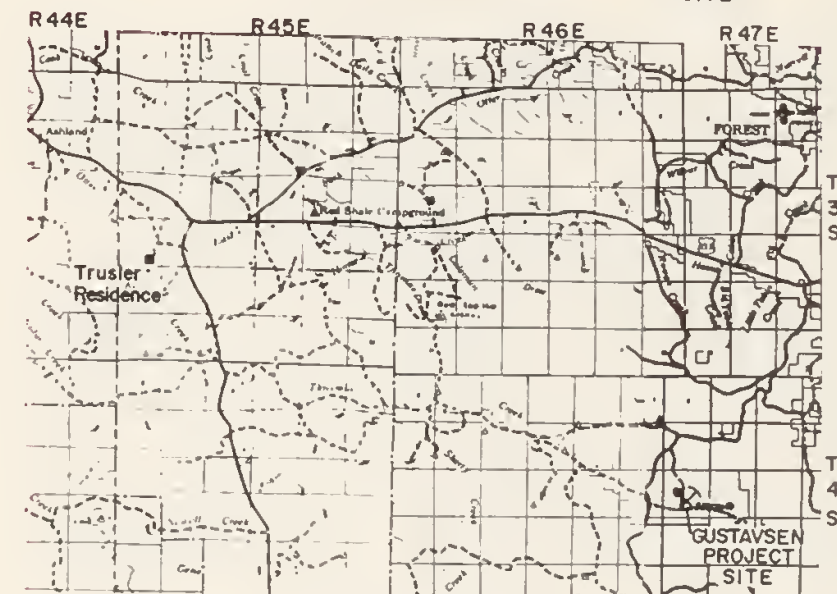
#### NOTICE

AN ABANDONED COAL MINE UNDERLIES THIS SITE.  
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DEEMED NECESSARY TO INSURE SAFETY WHILE  
PERFORMING THEIR DUTIES.

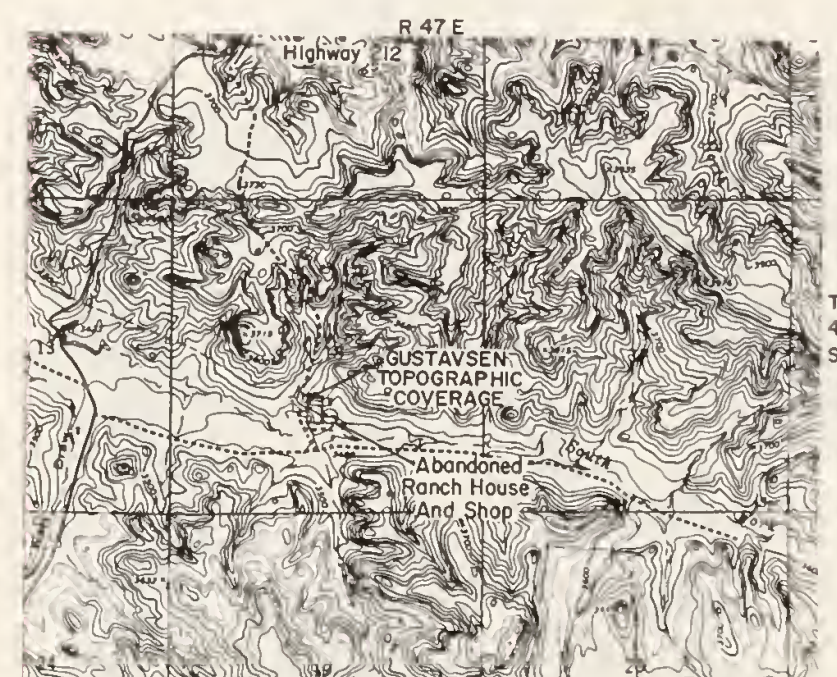


STATE LOCATION MAP

GUSTAVSEN  
PROJECT  
SITE



VICINITY ACCESS MAP



SITE LOCATION MAP

AS-BUILT DRAWING

#### SITE PLAN AND GENERAL LAYOUT

GUSTAVSEN SITE - PHOTO INDEX  
SECTION 18, T4S, R47E  
POWDER RIVER COUNTY, MONTANA

STATE OF MONTANA  
DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

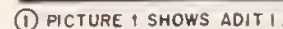
SPECTRUM ENGINEERING  
Mining and Civil Engineers

3302 4th AVE NORTH  
BILLINGS, MONTANA

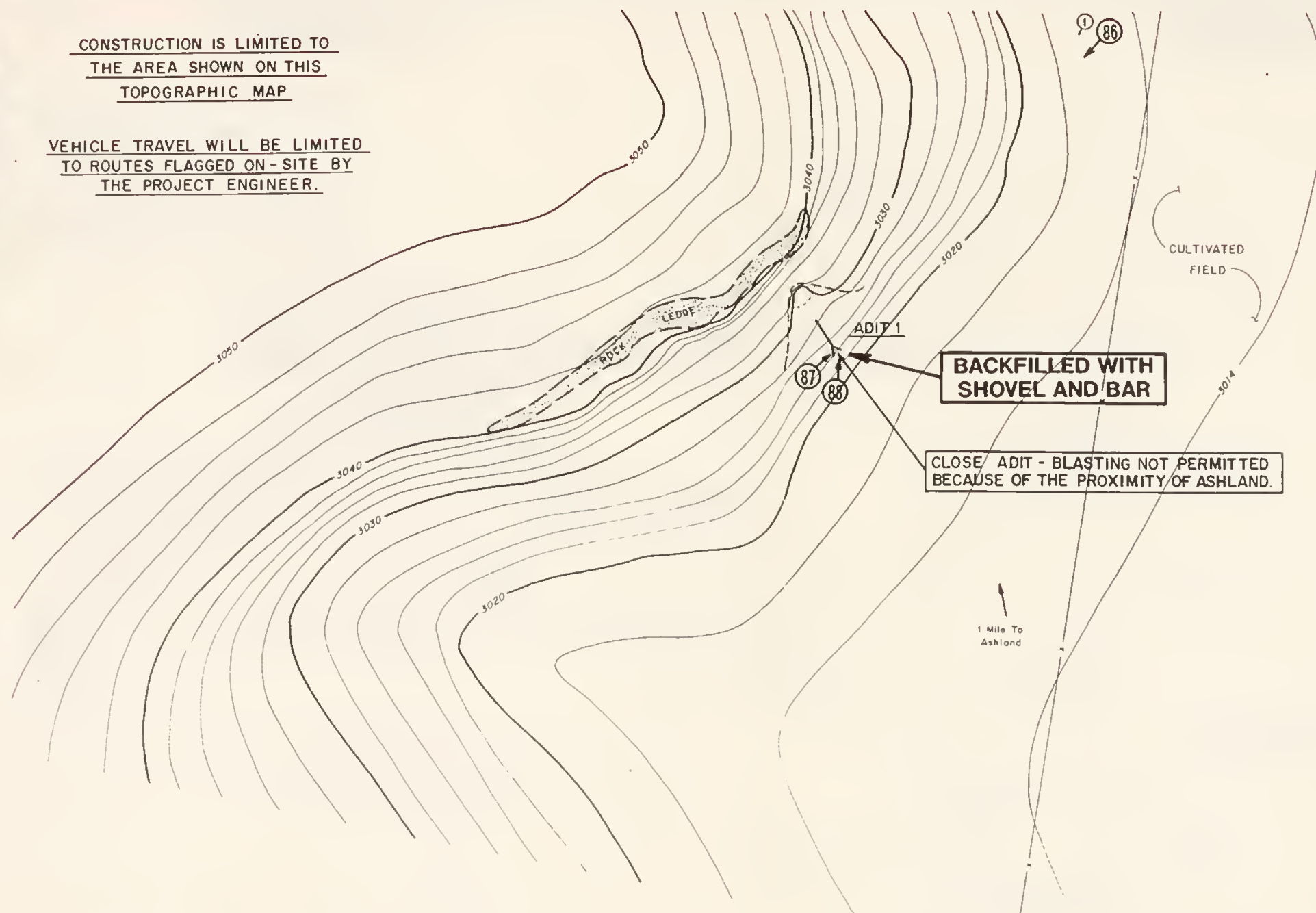
DATE	August 1990
DRAWN BY	OLO
APPROVED BY	GWR
NO.	REVISIONS
DATE	BY
SHEET NO	7 of 11



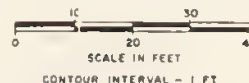




VEHICLE TRAVEL WILL BE LIMITED  
TO ROUTES FLAGGED ON-SITE BY  
THE PROJECT ENGINEER.



NOTE: DUE TO THE PROXIMITY OF ASHLAND,  
DRILLING AND BLASTING WILL NOT BE  
PERMITTED AT THIS SITE.




### WORK DESCRIPTION

- CLOSE ADIT 1 BY BACKFILLING.

Vertical Datum Based On Interpolation Of  
USGS 7 1/2' Quadrangle ASHLAND, MT.  
Topography Prepared From Ground Survey  
Conducted In 1989 By Spectrum Engineering  
Using A Plane Table And Alidade. This  
Topography Is Of Reconnaissance Class  
And Has Not Been Field Checked

LEGEND

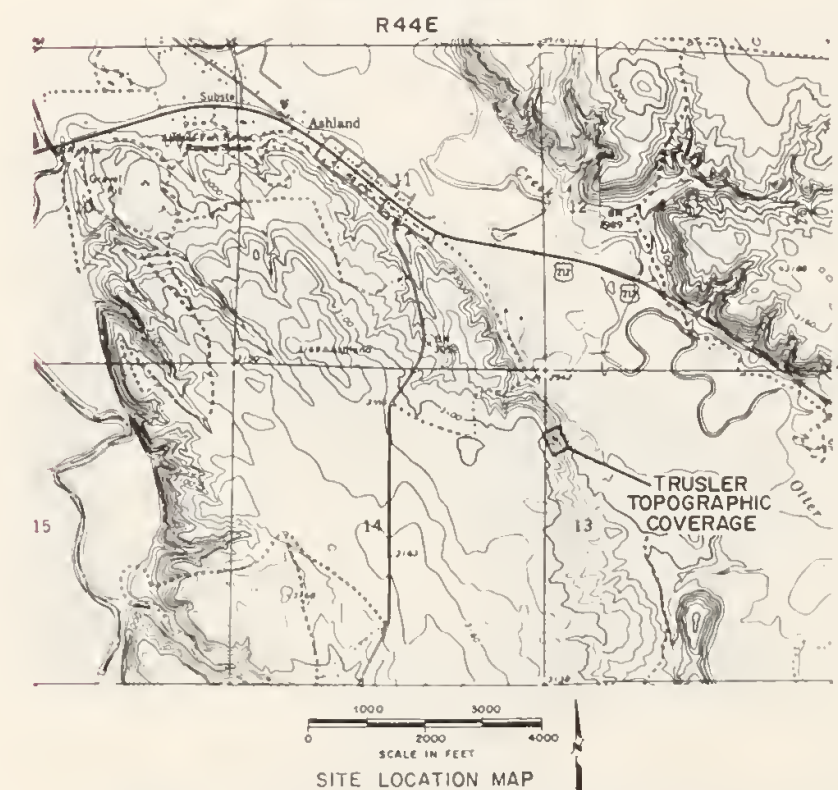
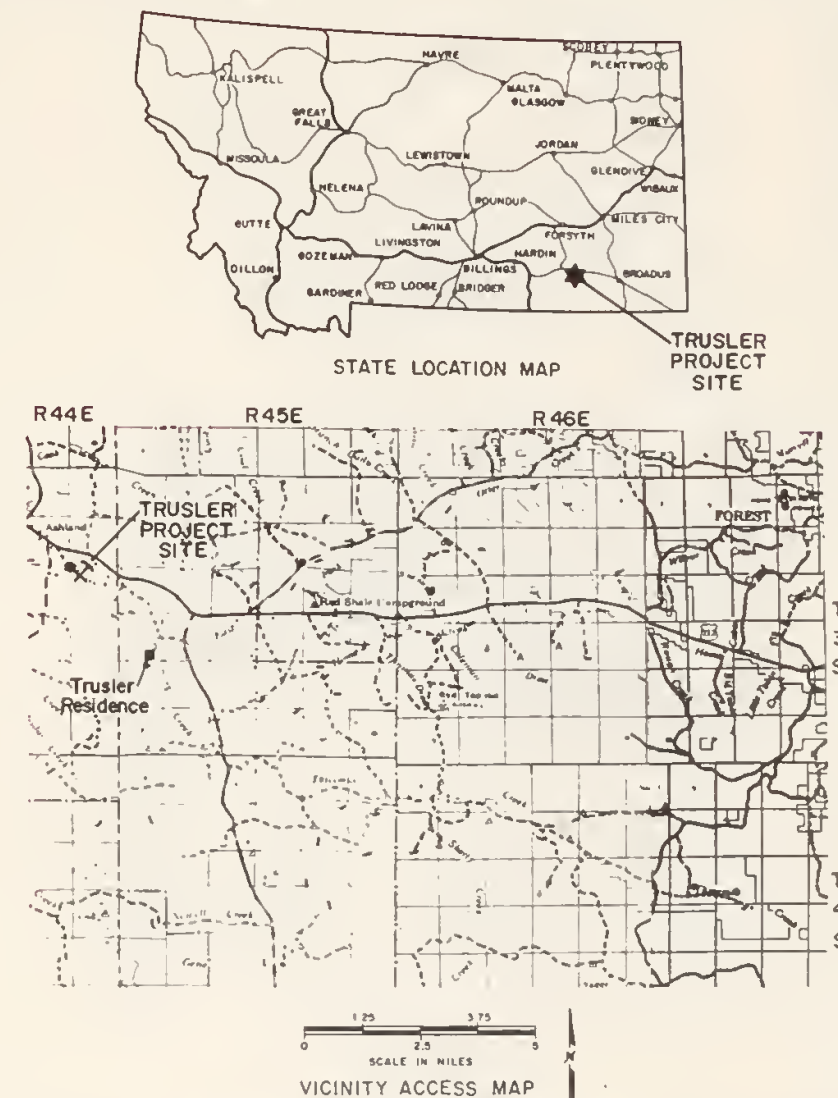
— 3040 —	CDNTOUR	① →	PICTURE NUMBER AND ORIENTATION
	COAL SLACK		SUBSIDENCE PIT (SP) NUMBER (B DEPTH)
— ... —	DRAINAGE	— < —	OPEN ADIT

LANDOWNER AND CONTACT  
SECTION 13, T3S, R44E

TRUSLER, INC.  
W.W. BILL TRUSLER  
P.O. BOX 306  
ASHLAND, MT. 59003  
PHONE (406) 784-2337

NDTICE

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## AS-BUILT DRAWING

## SITE PLAN AND GENERAL LAYOUT

TRUSLER SITE - PHOTO INDEX  
SECTION 13, T3S, R44E  
ROSEBUD COUNTY, MONTANA

STATE OF MONTANA  
DEPARTMENT OF STATE LANDS  
ABANDONEO MINE RECLAMATION BUREAU, RECLAMATION DIVISION

**SPECTRUM ENGINEERING**  
Mining and Civil Engineers

3302 4th AVE NORTH  
BILLINGS, MONTANA

DATE August 1990		
DRAWN BY: DLO		
APPROVED BY: GWR		
REVISIONS		
NO	DATE	BY
SHEET NO 8 of 1		



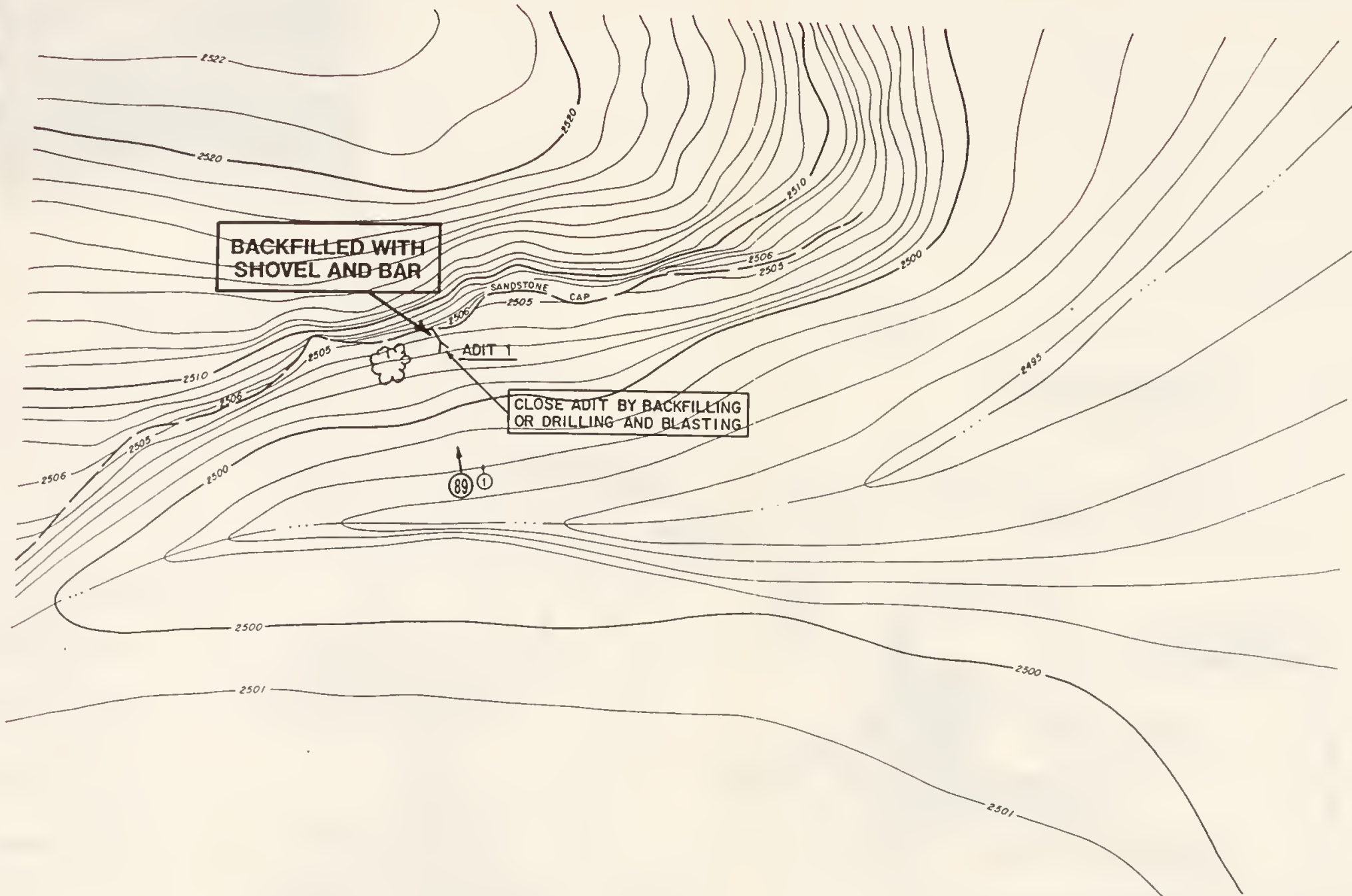




① PICTURE 1 IS AN AERIAL VIEW OF ADIT 1.

VEHICLE TRAVEL WILL BE LIMITED  
TO ROUTES FLAGGED ON-SITE BY  
THE PROJECT ENGINEER.

CONSTRUCTION IS LIMITED TO  
THE AREA SHOWN ON THIS  
TOPOGRAPHIC MAP



LANDOWNER AND CONTACT  
SECTION 24, T6N, R43E

HUNT OIL COMPANY  
FOUNTAIN PLACE  
1445 ROSS ST FIELD  
DALLAS, TX. 75202-2785  
PHONE (214) 978-8000

WORK DESCRIPTION

- CLOSE ADIT 1. THE CONTRACTOR MAY EMPLOY BACKFILLING OR DRILLING AND BLASTING.

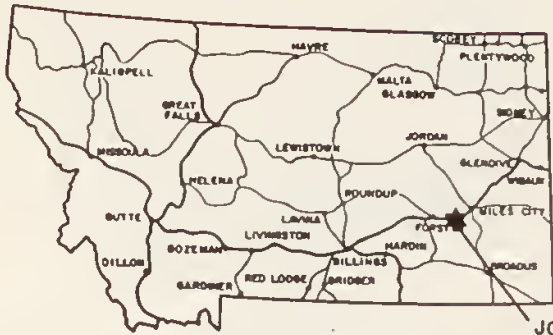
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USGS 7 1/2' Quadrangle: THURLOW, MT.  
Topography Prepared From Ground Survey  
Conducted In 1989 By Spectrum Engineering  
Using A Plane Table And Alidade. This  
Topography Is Of Reconnaissance Class  
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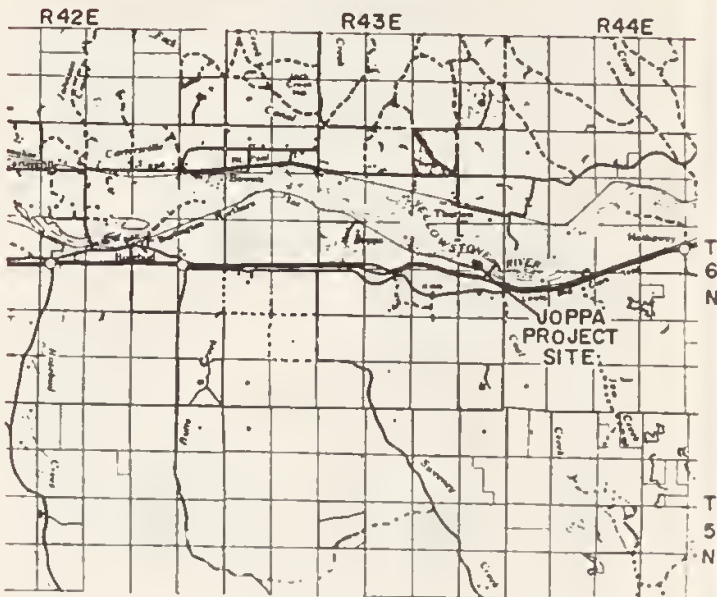
- LEGEND
- 2500 — CONTOUR
  - COAL SLACK
  - DRAINAGE
  - ① PICTURE NUMBER AND ORIENTATION
  - SP 1 SUBSIDIARY PIT (SP) NUMBER (B DEPTH)
  - OPEN ADIT

NOTICE

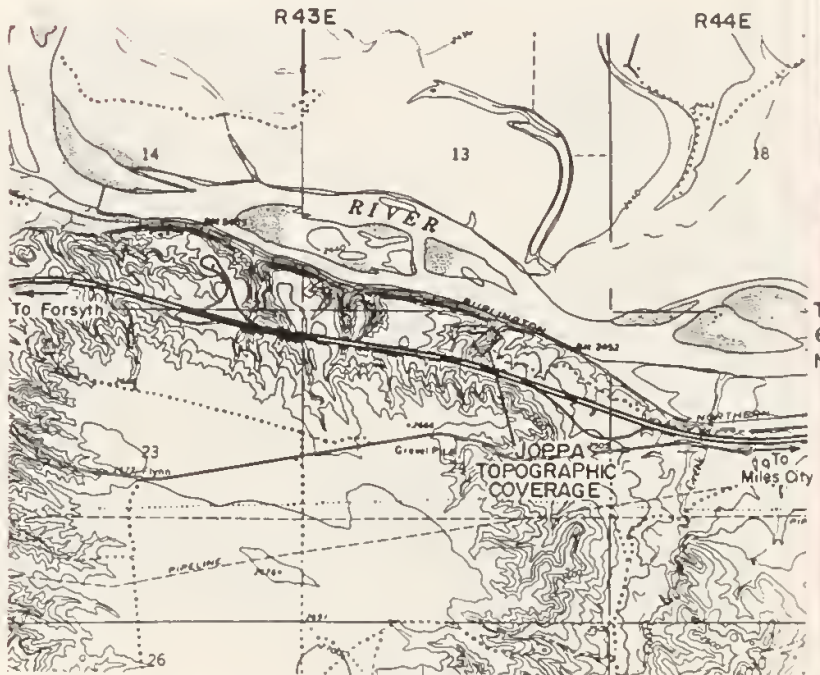
AN ABANDONED COAL MINE UNDERLIES THIS SITE.  
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PERFORMING THEIR DUTIES.



STATE LOCATION MAP  
JOPPA PROJECT SITE



VICINITY ACCESS MAP



SITE LOCATION MAP

SITE PLAN AND GENERAL LAYOUT

JOPPA SITE - PHOTO INDEX  
SECTION 24, T6N, R43E  
ROSEBUD COUNTY, MONTANA

STATE OF MONTANA  
DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

SPECTRUM ENGINEERING  
Mining and Civil Engineers

3302 4TH AVE NORTH  
BILLINGS, MONTANA

DATE AUGUST 1990  
DRAWN BY: DLO  
APPROVED BY: GWR  
REVISIONS  
DATE BY  
SHEET NO 9 of 11

AS-BUILT DRAWING



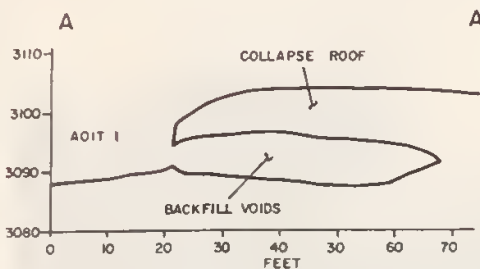




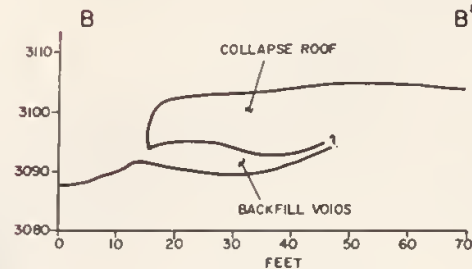
1 PICTURE 1 SHOWS AN AERIAL VIEW OF THE MEES SITE.



2 PICTURE 2 SHOWS THE ADITS, THE COAL SLACK AREA, AND THE BREACHED DAM.



SECTION A-A'



SECTION B-B'

#### WORK DESCRIPTION

##### MINE SITE

- STRIP AND STOCKPILE 4 INCHES OF TOPSOIL FROM THE BORROW AREA, AREAS OVER MINE VOIDS, AND THE AREA OF THE DAM.
- COLLAPSE THE ROOF OVER THE UNDERGROUND MINE VOIDS, AS SHOWN.
- BACKFILL THE SUBSIDENCE CREATED BY THE COLLAPSED MINE VOIDS. USE COAL SLACK UNTIL DEPLETED AND FINISH WITH MATERIAL FROM THE BORROW AREA.
- NEUTRALIZE COAL SLACK AREAS.
- REBUILD THE SMALL DAM TO THE CONTOURS SHOWN. THE EMBANKMENT SHALL BE BUILT IN 8" (LOOSE THICKNESS) LIFTS TO 95% MAXIMUM DENSITY.
- PLACE TOPSOIL FROM THE STOCKPILES OVER THE SUBSIDENCE AND BORROW AREAS.
- REVEGETATE ALL DISTURBED AREAS.
- INSTALL 4-M FARM FENCE, SINGLE AND DOUBLE PANELS, AND GATE, AS SHOWN.

##### CABIN SITE (Not Shown)

- REMOVE AND DISPOSE OF CABIN REMAINS AND DEBRIS.
- REGRADE THE AREA BLENDING THE CONTOURS IN WITH SURROUNDING TOPOGRAPHY.
- REVEGETATE ALL DISTURBED AREAS.
- INSTALL 4-M FARM FENCE, SINGLE AND DOUBLE PANELS, AND GATE.

#### WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
DEBRIS	CABIN AND MINE SITE	REMOVE AND DISPOSE	2 - 3 PICKUP LOADS
TOPSOIL	MINE/DAM/BORROW AREA FROM BORROW AREA STOCKPILES	STRIP AND STOCKPILE DIRECT PLACE PLACE FROM STOCKPILE	95 CY 100 CY 95 CY 290 CY
MINE WORKINGS	SEE TOPOGRAPHIC MAP	COLLAPSE ROOF BACKFILL VOIDS	- 250 CY
DAM	COMPACTED EARTH/FILL EMBANKMENT WITH SPILLWAY	CONSTRUCT AS SHOWN	75 CY
AREA REGRADE	CABIN SITE	REGRADE AREA SMOOTH	50 CY
WATER	BACKFILL AND EMBANKMENTS ROADS/CONSTRUCTION AREA	FOR COMPACTION DUST SUPPRESSION	3.0 KGAL 2.0 KGAL 5.0 KGAL
COAL SLACK AREA	REGRADED COAL SLACK PILE	NEUTRALIZE AT 5 TONS PER ACRE PURE CaCO <sub>3</sub>	0.10 ACRES 10.5 TONS
DISTURBED AREAS	COAL SLACK AREA DAM CABIN AREA ROADS	REVEGETATE REVEGETATE REVEGETATE REVEGETATE	0.10 ACRES 0.03 ACRES 0.02 ACRES 0.10 ACRES
TOTAL (EST.)	SUBSIDENCE/BORROW AREAS	REVEGETATE	0.12 ACRES
REVEGETATION OF	FERTILIZER AT 92.5 LBS SEED AT 23 LBS PLS HAY MULCH AT 3,000 LBS	APPLY DRILL SEED SPREAD AND CRIMP	34 POUNDS 8.5 LB PLS 1,110 POUNDS
FENCE MINE AND CABIN SITES	TYPE F-4M FARM FENCE SINGLE PANELS DOUBLE PANELS TYPE F-4 FARM FENCE GATES	INSTALL INSTALL INSTALL INSTALL 121	1,030 L FT 3 EACH 10 EACH 32 L FT

#### LANDOWNER AND CONTACT

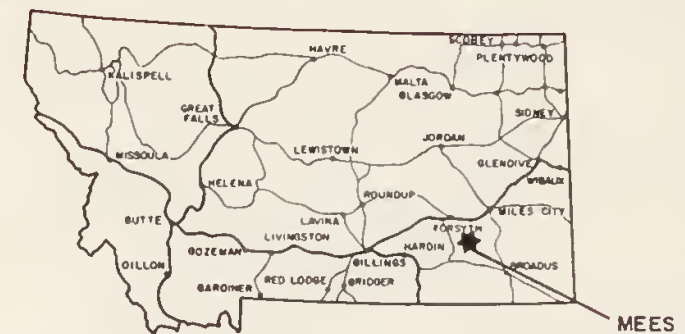
LAVON MEES TRUST  
C/O MARK MEES  
MEES HEREFORD RANCH  
ROSEBUD, MT. 59347  
PHONE (406) 347-5413

#### LEGEND

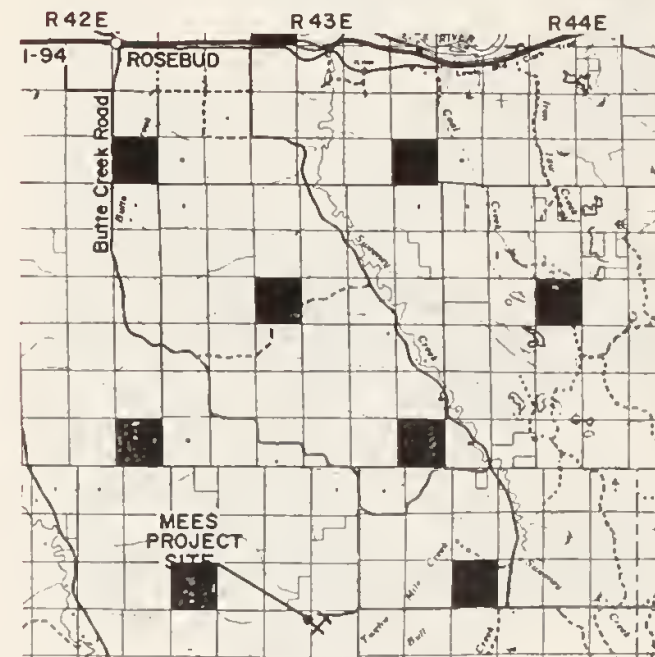
- 3100 CONTOUR
- COAL SLACK
- DRAINAGE
- PICTURE NUMBER AND ORIENTATION
- UNDERGROUND MINE WORKINGS
- OPEN ADIT

CONSTRUCTION IS LIMITED TO THE AREA SHOWN ON THIS TOPOGRAPHIC MAP

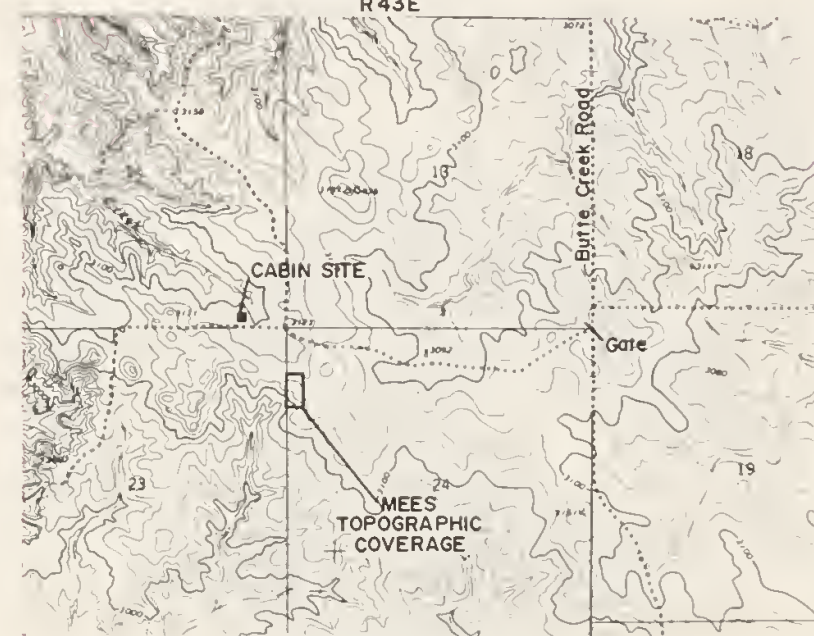
VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.



STATE LOCATION MAP



SCALE IN FEET  
SCALE IN MILES  
VICINITY ACCESS MAP  
R43E



SCALE IN FEET  
SCALE IN MILES  
SITE LOCATION MAP

Vertical Datum Based On Interpolation Of USGS 7 1/2' Quadrangle: CRAIN PLACE, MT Topography Prepared From Ground Survey Conducted In 1989 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked.

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.

#### NOTICE

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AS-BUILT DRAWING

#### SITE PLAN AND GENERAL LAYOUT

#### MEES SITE - PHOTO INDEX

SECTION 24, T4N, R43E  
ROSEBUD COUNTY, MONTANA

STATE OF MONTANA  
DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

SPECTRUM ENGINEERING  
Mining and Civil Engineers

3302 4TH AVE NORTH  
BILLINGS, MONTANA

DATE August 1990  
DRAWN BY: DLD  
APPROVED BY: GWR  
NO REVISIONS  
BY  
SHEET NO 10 of 11





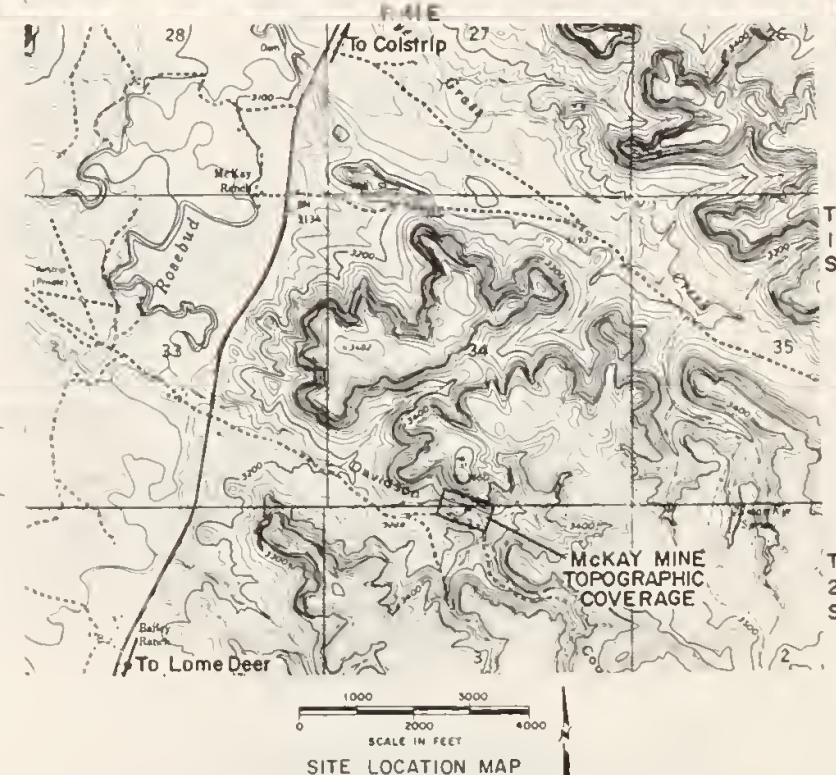
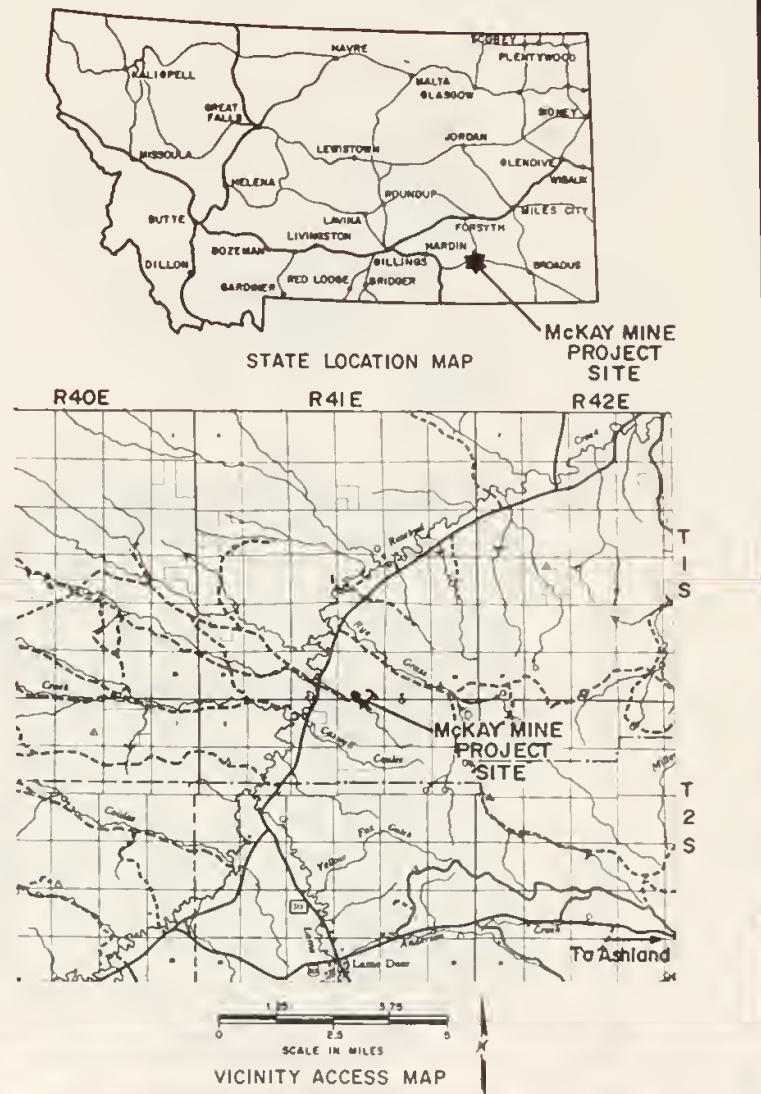
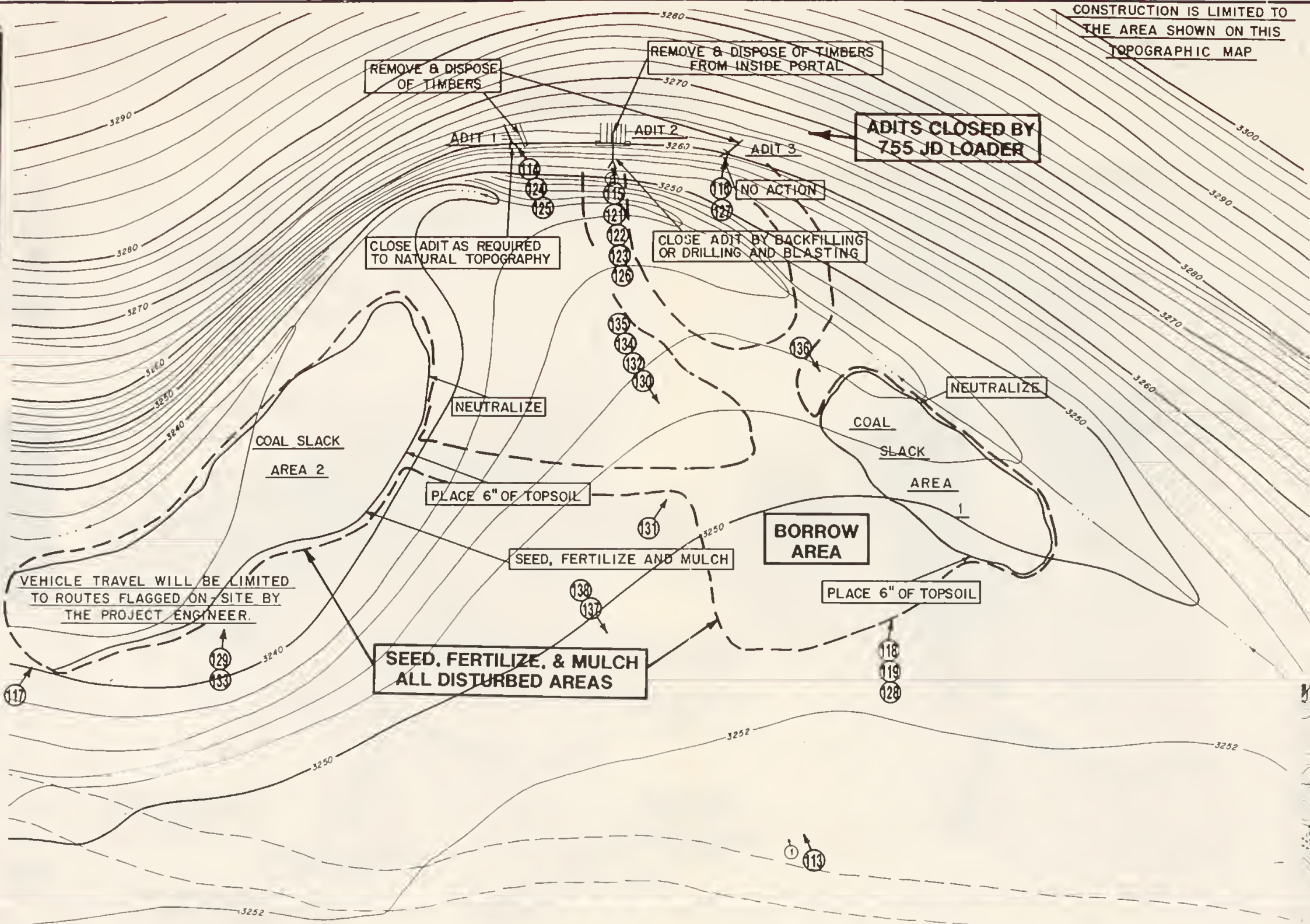


1 PICTURE 1 SHOWS AN AERIAL VIEW OF THE MCKAY MINE SITE.



2 PICTURE 2 SHOWS ADIT 2.

CAUTION: EXPLOSIVES MAY BE PRESENT AT THE SITE. IF SO, CONSULT THE OWNER'S REPRESENTATIVE FOR THE PROPER PROCEDURE TO FOLLOW.



LANDOWNER AND CONTACT  
SECTION 34, T1S, R41E  
SECTION 3, T2S, R41E  
PEABODY DEVELOPMENT CO.  
ATTN: VIC GARBER  
P.O. BOX 706  
DOUGLAS, WY. 82633  
PHONE (307) 358-6803

#### WORK DESCRIPTION

- REMOVE MINE TIMBERS FROM ADIT 1.
- REMOVE THE DOOR, DOOR FRAME, AND TIMBERS FROM WITHIN ADIT 2. ALL PIECES OF HARDWARE FROM THE DOOR AND ALL ARTIFACTS FOUND INSIDE THE DOOR WILL BE GIVEN TO THE OWNER'S REPRESENTATIVE FOR HANDLING.
- REMOVE AND DISPOSE OF ALL DEBRIS.
- CLOSE ADITS 1 AND 2 BY BACKFILLING OR BY DRILLING AND BLASTING.
- NEUTRALIZE COAL SLACK AREAS.
- PLACE 6 INCHES OF TOPSOIL OVER THE NEUTRALIZED COAL SLACK AREA.
- PLACE TOPSOIL FROM THE STOCKPILE OVER THE BORROW AREA.
- REVEGETATE ALL DISTURBED AREAS.

#### WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
MINE WORKINGS	ADITS 1 AND 2	REMOVE DOOR, TIMBERS CLOSE ADITS	2 EACH
TOPSOIL	BORROW AREA NEUTRALIZED COAL SLACK STOCKPILES	STRIP AND STOCKPILE DIRECT PLACE PLACE FROM STOCKPILE	70 CY 200 CY 70 CY 340 CY
TOTAL (EST.)			
WATER	ROADS AND OTHER AREAS	DUST SUPPRESSION	2.0 KGAL
COAL SLACK AREAS	ADJACENT TO CREEK	NEUTRALIZE AT 5 TONS PER ACRE PURE CaCO <sub>3</sub>	0.25 ACRES (11.25 TONS)
DISTURBED AREAS	COAL SLACK AREA BORROW AREA	REVEGETATE REVEGETATE	0.25 ACRES 0.13 ACRES 0.38 ACRES
TOTAL (EST.)			
REVEGETATION OF 0.38 ACRES	FERTILIZER AT 92.5 LBS SEED AT 23 LBS PLS HAY MULCH AT 3,000 LBS	APPLY ORILL SEED SPREAD AND CRIMP	35.2 POUNDS 8.7 LB PLS 1,140 POUNDS

Vertical Datum Based On Interpolation Of  
USGS 7 1/2' Quadrangle: JIM TOWN, MT.  
Topography Prepared From Ground Survey  
Conducted In 1989 By Spectrum Engineering  
Using A Plane Table And Alidade This  
Topography Is Of Reconnaissance Class  
And Has Not Been Field Checked.

ADDITIONAL INFORMATION PERTAINING TO THIS  
SITE MAY EXIST IN THE DEPARTMENT OF STATE  
LANDS' FILES OR AT SPECTRUM ENGINEERING'S  
OFFICE. THIS MATERIAL IS AVAILABLE FOR  
REVIEW BY ANY INTERESTED PARTY

- LEGEND
- 3250 CONTOUR
  - COAL SLACK
  - DRAINAGE
  - PICTURE NUMBER AND ORIENTATION
  - SUBSIDENCE PIT (SP) NUMBER (5 DEPTH)
  - OPEN ADIT

#### NOTICE

AN ABANDONED COAL MINE UNDERLIES THIS SITE.  
MANY POTENTIAL HAZARDS EXIST. THE EXTENT  
OF THESE HAZARDS IS NOT FULLY KNOWN.  
CONTRACTORS AND OTHER PERSONS WORKING AT  
THE SITE SHALL APPRISE THEMSELVES OF THE  
CONDITIONS AND TAKE WHATEVER STEPS ARE  
DEEMED NECESSARY TO INSURE SAFETY WHILE  
PERFORMING THEIR DUTIES.

AS-BUILT DRAWING

#### SITE PLAN AND GENERAL LAYOUT

**MCKAY MINE SITE - PHOTO INDEX**  
SECTION 34, T1S, R41E  
SECTION 3, T2S, R41E  
ROSEBUD COUNTY, MONTANA

STATE OF MONTANA  
DEPARTMENT OF STATE LANDS  
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

SPECTRUM ENGINEERING

Mining and Civil Engineers

3302 4th AVE NORTH  
BILLINGS, MONTANA

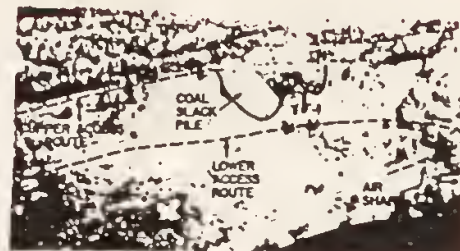
DATE August 1990  
DRAWN BY: DLO  
APPROVED BY: GWR  
REVISIONS  
NO. DATE BY  
SHEET NO. 11 of 11





VEHICLE TRAVEL WILL BE LIMITED  
TO ROUTES FLAGGED ON-SITE BY  
THE PROJECT ENGINEER.

CONSTRUCTION IS LIMITED TO  
THE AREA SHOWN ON THIS  
TOPOGRAPHIC MAP



① PICTURE 1 SHOWS THE ENTIRE SITE.



② PICTURE 2 SHOWS THE AIR SHAFT AND DEBRIS.

WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
WHELMET	20' x 15' x 8' DEEP	BACKFILL WITH COAL SLACK	55 BCY
COAL SLACK PILE		REMOVE AND USE AS BACKFILL MATERIAL FOR WHELMET	55 BCY
		REMOVE AND USE AS BACKFILL AT THE WESTERN MINE SITE	1,200 BCY
		REGRADE TO 2.5:1 H/V AVG. SLOPES	1,540 BCY
DEBRIS	10' AND AROUND WHELMET AND ON COAL SLACK PILE	REMOVE AND DISPOSE OF 12 RIDEUP LOADS	
TOPSOIL	BORROW AREA (1.33 ACRES)	SALVAGE AND REPLACE (4" DEEP)	825 BCY
		PLACE OVER COAL SLACK AND BACKFILLED AREAS	2,480 BCY
WATER	AS REQUIRED	COMPACTION AND REGRADE BUT SUPPRESSION	8,200 GALLONS
			10,000 GALLONS
			18,200 GALLONS
NEUTRALIZE	ALL COAL SLACK AREAS	100% CALCIUM CARBONATE APPLICATION (5# TONS/ACRE/INCH) SLICES	21.8 TONS
EROSION CONTROL BLANKET	SEE TECHNICAL SPEC	PLACE ON STEEP SLOPES	4,700 SF
PERMITS	SEE APPLICATION	SEE APPLICATION	SEE APPLICATION
RECLAIMED AREA	2.03 ACRES	166,100	8,100 LBS*
TOPSOIL BORROW AREA	1.33 ACRES	102,181	4,600 LBS
TOTALS	3.36 ACRES	230,186	10,700 LBS

\*DOES NOT INCLUDE AREAS IN WHICH EROSION CONTROL BLANKET IS TO BE PLACED

WORK DESCRIPTION

- DISPOSE OF ALL DEBRIS ENTERING THE SITE.
- PROVIDE WATER FOR USE IN COMPACTION REGARDING, AND BUT SUPPRESSION IN THE CONSTRUCTION PHASE
- REMOVE AND DISPOSE OF DEBRIS ON TOP OF COAL SLACK PILE AND FROM VEGETATION AND AROUND THE WHELMET
- SALVAGE AND REPLACE ALL TOPSOIL FROM AREAS ON WHICH THE COAL SLACK PILE IS TO BE REGRADED
- BACKFILL WHELMET WITH COAL SLACK MATERIAL
- BACKFILL PORTION OF COAL SLACK PILE TO BACKFILL THE ADJ. TACAYATION AND AIR SHAFT AT THE WESTERN MINE SITE (SEES LEMER 2 AND 3 OF 3)
- REGRADE THE COAL SLACK PILE TO 2.5:1 H/V AVERAGE SLOPES BLENDING WITH SURROUNDING TOPOGRAPHY.
- NEUTRALIZE COAL SLACK AREAS
- PLACE 1" OF TOPSOIL FROM TOPSOIL BORROW AREA OVER ALL REGRADED AREAS, BACKFILLED AREAS AND COAL SLACK PILE
- PLACE EROSION CONTROL BLANKET ON STEEP SLOPES AS SHOWN ON SITE PLAN.
- SEED, FERTILIZE, AND MULCH ALL DISTURBED AREAS.
- ADDITIONAL WORK DESCRIPTION DETAILS CAN BE FOUND IN THE SPECIAL PROVISIONS

LANDOWNERS AND CONTACTS

SECTION 4	SECTION 9, ALL
ALICE BROWER	JOSEPH K. KUZARA
SALLEE MURPHEE	62 WESTERN ROAD
NANCY GLENN	ROUNDUP, MT 59072
60 ALICE BROWER	PHONE: (406) 323-2628
903 W. WEST	
ROUNDUP, MT 59072	
PHONE: (406) 323-3194	

LEGEND

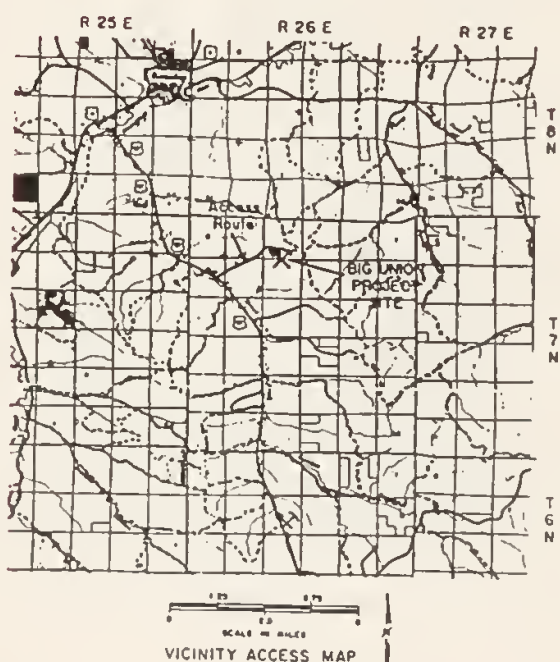
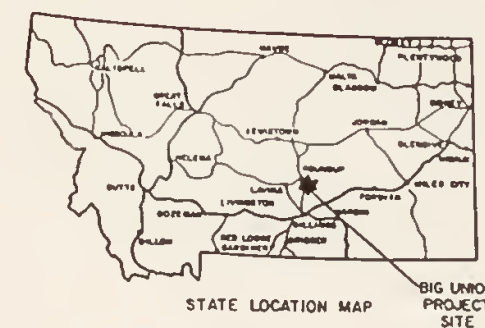
- 3760' CONTOUR
- COAL SLACK
- DRAINAGE
- PICTURE NUMBER AND ORIENTATION
- UNDERGROUND MINE WORKINGS
- OPEN ADIT

Vertical Datum Based On Interpolation Of USGS 7 1/2' Quadrangle - GAGE MT Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.

NOTICE

AN ABANDONED MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.



AS-BUILT DRAWING

SITE PLAN AND GENERAL LAYOUT

**BIG UNION SITE - PHOTO INDEX**  
SECTIONS 4 AND 9, T7N, R26E  
MUSSELSHELL COUNTY, MONTANA

STATE OF MONTANA DEPARTMENT OF STATE LANDS ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION	SPECTRUM ENGINEERING Mining and Civil Engineers 3302 4th AVE NORTH BILLINGS, MONTANA
DATE: January 1989 DRAWN BY: LMR CHECKED BY: APPROVED BY: REVISION: NO. DATE BY:	





VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY BE OBTAINED FROM THE PROJECT ENGINEER'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.

## APPLY EROSION CONTROL BLANKET

SEED, FERTILIZE AND MULCH

EXCAVATE CHECK DITCHES AND REGRADING

NEUTRALIZE

SPREAD TOPSOIL

INSTALL 4" FARM FENCE

SEED, FERTILIZE AND MULCH

SPREAD TOPSOIL

INSTALL 4" FARM FENCE

SEED, FERTILIZE AND MULCH

SPREAD TOPSOIL

INSTALL 4" FARM FENCE

SEED, FERTILIZE AND MULCH

SPREAD TOPSOIL

INSTALL 4" FARM FENCE

SEED, FERTILIZE AND MULCH

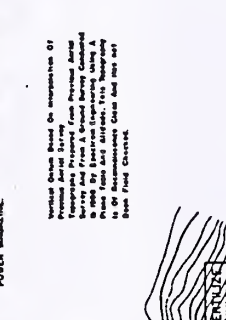
SPREAD TOPSOIL



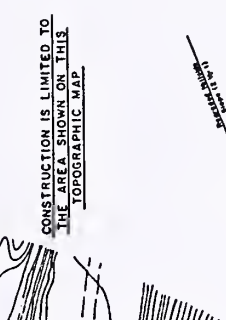
PICTURE 1 SHOWS THE ERODED HILLSIDE. THE BULLING ACTION IS EVIDENT.



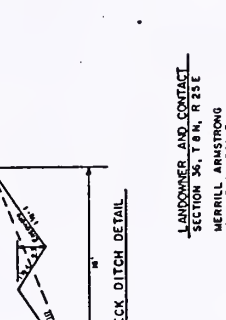
PICTURE 2 SHOWS THE DOORWAY TO THE ABANDONED POWER MAGAZINE.



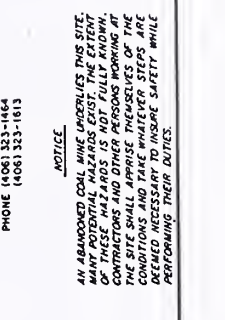
PICTURE 3 SHOWS SALLING IN THE ROAD.



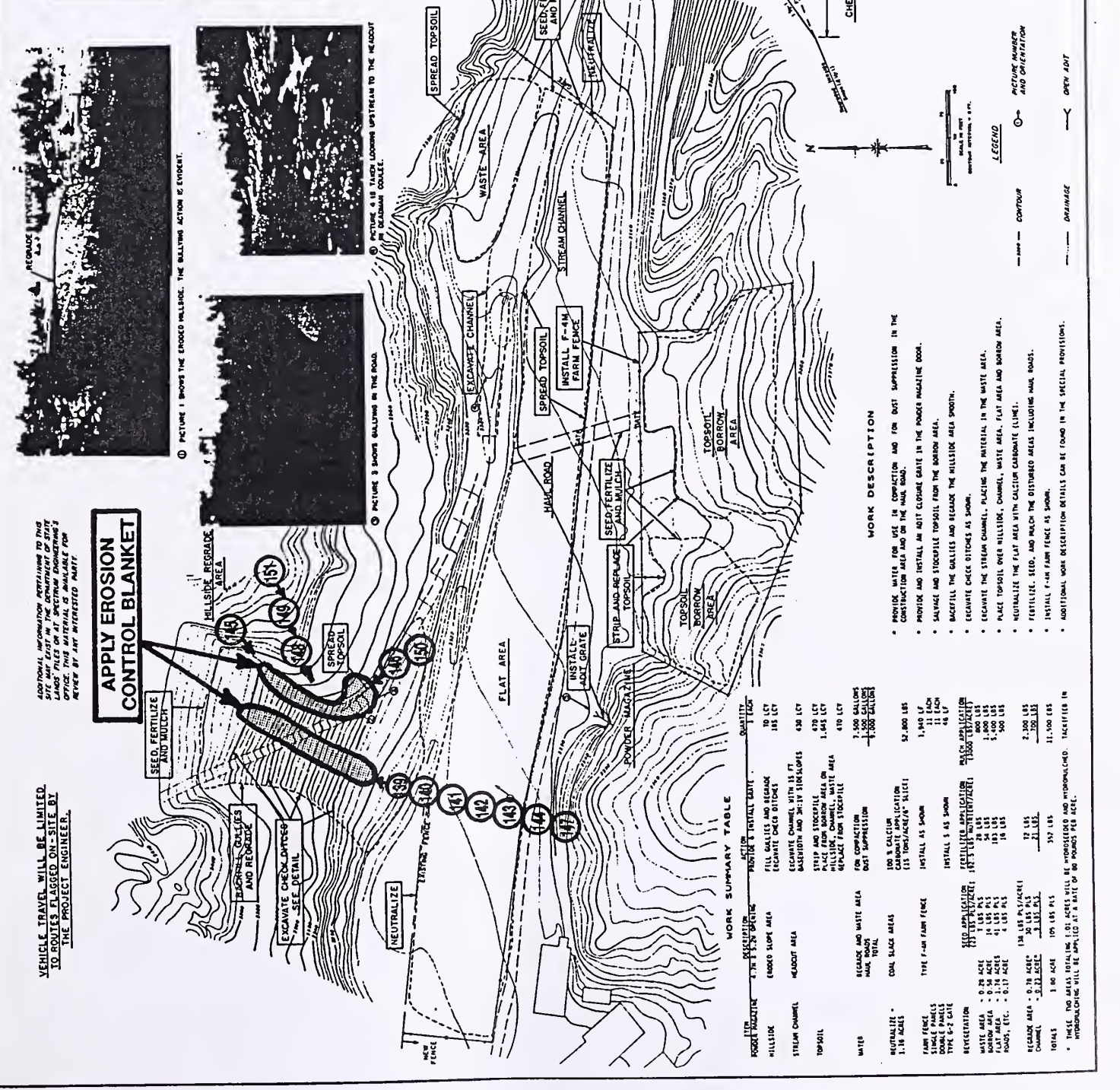
PICTURE 4 IS TAKEN LOOKING UPSTREAM TO THE HEADCUT IN SULLYMAN CREEK.



PICTURE 5 SHOWS THE DOORWAY TO THE ABANDONED POWER MAGAZINE.



PICTURE 6 SHOWS THE DOORWAY TO THE ABANDONED POWER MAGAZINE.



### WORK SUMMARY TABLE

PROJECT MATERIAL	EXPLANATION	QUANTITY	ACTION	QUANTITY
HILLSIDE	ERODED SLOPE AREA	1.18 ACRES	FILL GULLIES AND REGRADE (EXCAVATE DITCH OFFSETS)	1.18 ACRES
STREAM CHANNEL	HEADCUT AREA	0.30 ACRES	EXCAVATE CHANNEL WITH 15 FT BASELINE AND 20-FT SLOPES	0.30 ACRES
TOPSOIL	STRIP AND STOCKPILE	470 CFT	REPLACE CHANNEL WITH TOPSOIL	470 CFT
WATER	REGRADING AND WASTE AREA	1.500 GALLONS	FOR CONSTRUCTION	1.500 GALLONS
NEUTRALIZE - 1.18 ACRES	COAL SLUDGE AREAS	100.0 GALLONS	CARBONATE APPLICATION (15 TONS/ACRE/4" SLICE)	100.0 GALLONS
FARM FENCE	TYPE F-4M FARM FENCE	1.18 ACRES	INSTALL 4" X 4" POSTS	1.18 ACRES
SINGLE PANELS	REGENERATION	1.18 ACRES	RESEED/REVEGETATION	1.18 ACRES
DOUBLE PANELS	WASTE AREA - 0.78 ACRES	1.18 ACRES	RESEED/REVEGETATION	1.18 ACRES
TYPE 4-6 GATE	WASTE AREA - 0.78 ACRES	1.18 ACRES	RESEED/REVEGETATION	1.18 ACRES
	WASTE AREA - 0.78 ACRES	1.18 ACRES	RESEED/REVEGETATION	1.18 ACRES
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### WORK DESCRIPTION

- PROVIDE WATER FOR USE IN CONSTRUCTION AND FOR DUST SUPPRESSION IN THE CONSTRUCTION AREA AND ON THE MAINTENANCE ROAD.
- PROVIDE AND INSTALL AN ADJUST CLOSURE GATE IN THE POWER MAGAZINE DOOR.
- SPREAD AND STOCKPILE TOPSOIL FROM THE BORROW AREA.
- BACKFILL THE GULLIES AND REGRADE THE HILLSIDE AREA SLOPES.
- EXCAVATE CHECK DITCHES AS SHOWN.
- EXCAVATE THE STREAM CHANNEL. PLACE THE MATERIAL IN THE WASTE AREA.
- PLACE TOPSOIL OVER HILLSIDE, CHANNEL, WASTE AREA, FLAT AREA AND BORROW AREA.
- NEUTRALIZE THE FLAT AREA WITH CALCIUM CARBONATE (LIME).
- FERTILIZE, SEED, AND MULCH THE DISTURBED AREAS INCLUDING MAINT. ROAD.
- INSTALL F-4M FARM FENCE AS SHOWN.
- ADDITIONAL WORK DESCRIPTION DETAILS CAN BE FOUND IN THE SPECIAL PROVISIONS.

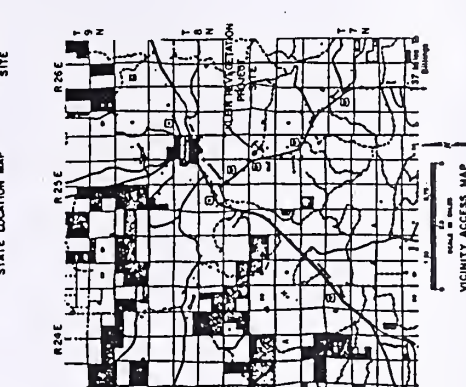
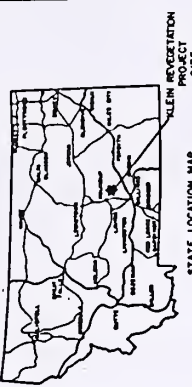
### LEGEND

- ROAD
- CONTOUR
- PICTURE NUMBER AND ORIENTATION
- DRAINAGE
- OPEN ADIT

### LANDOWNER AND CONTACT

SECTION 36, T 8 N, R 23 E  
MERRILL ARMSTRONG  
MERRILL ARMSTRONG  
PO BOX 100  
BOZEMAN, MT 59702  
PHONE (406) 323-1464  
PHONE (406) 323-1613

**NOTICE**  
AN ABANDONED COAL MINE UNDERLIES THIS SITE. THE MINE IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE NECESSARY TO PREVENT SAFETY WHILE PERFORMING THEIR DUTIES.



## AS-BUILT

### SITE PLAN AND GENERAL LAYOUT

### KLEIN SITE - PHOTO INDEX

SECTION 36, T 8 N, R 23 E  
MUSSELSHELL COUNTY, MONTANA

STATE OF MONTANA  
DEPARTMENT OF LANDS  
ABANDONED COAL RECLAMATION DIVISION

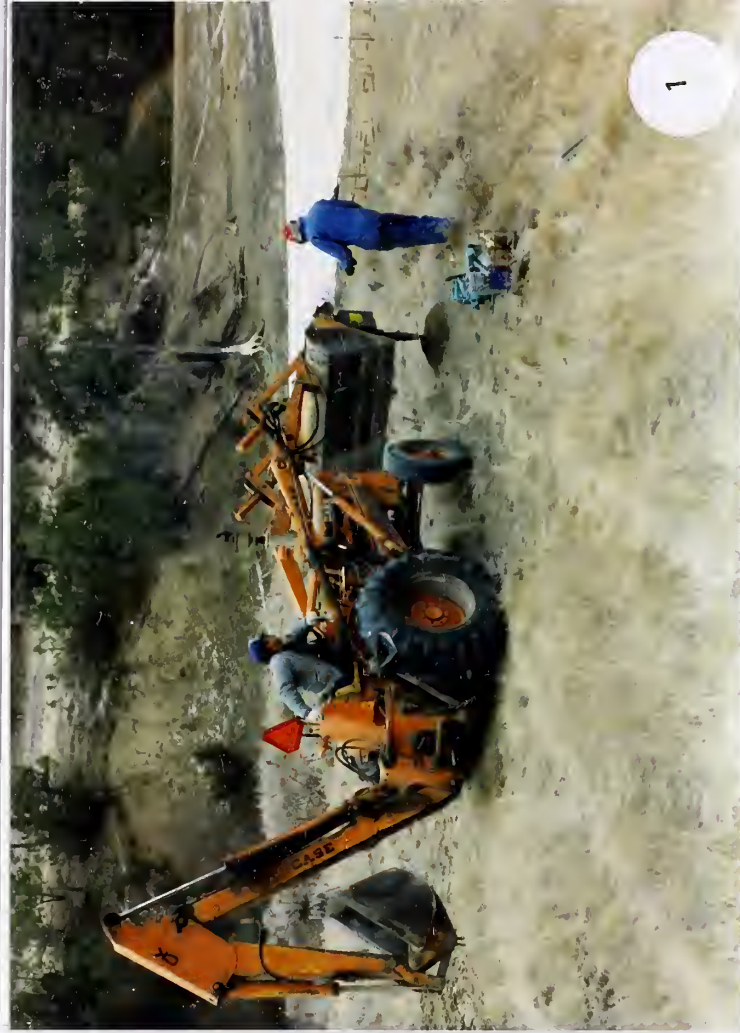
SITE 36-1-100  
SHEET 100  
DATE 11/1/80  
BY J. L. HARRIS  
CHECKED BY J. L. HARRIS  
APPROVED BY J. L. HARRIS

SPECTRUM - ENGINEERING  
Mining and Civil Engineers  
3000 4th Ave North  
Billings, Montana  
SHEET NO. 100





SE MONTANA  
EQUIPMENT







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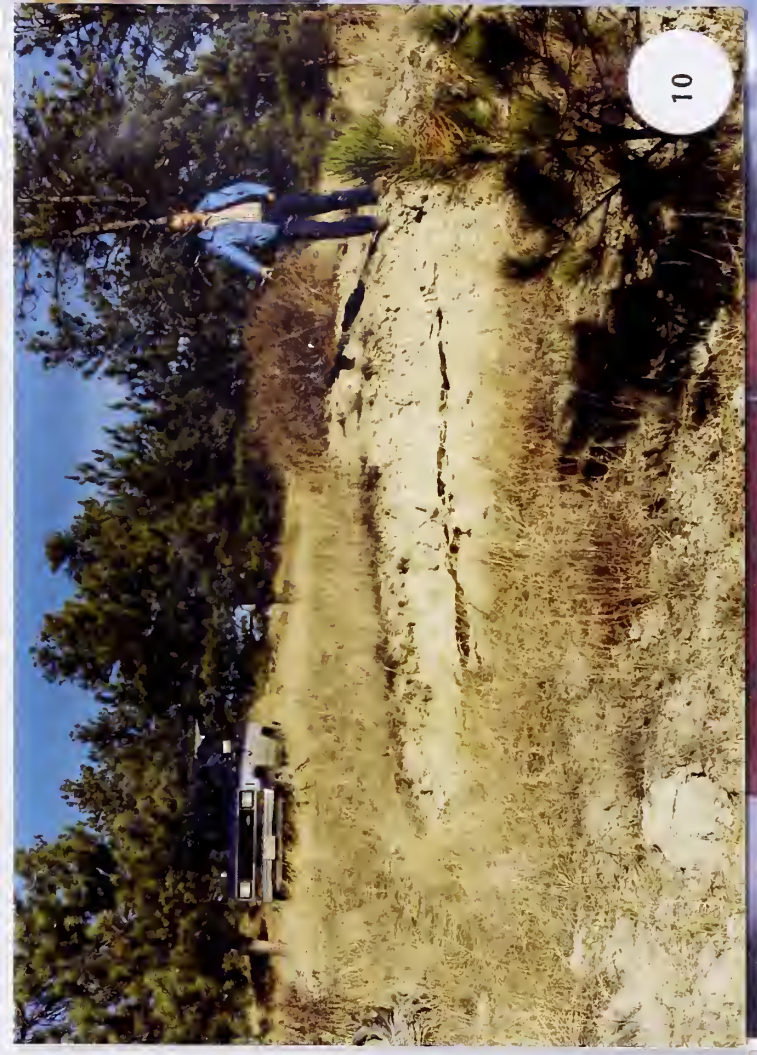
WILSON SITE  
QUAD: MINNEH, 1A  
CREEK SOUTH  
SEC. 5, T2N, R38E  
TREASURE COUNTY, MT.  
S.E. MONTANA PROJECT  
DSL AMRB 90-018

BEFORE, DURING AND  
AFTER CONSTRUCTION  
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DESCRIPTIONS ARE  
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CONSTRUCTION PERIOD  
11/19/90 - 12/17/90





WILSON SITE  
MINNEHAHA CRK. S. QUAD  
T2N, R38E, SEC. 5  
TREASURE COUNTY  
SE MONTANA PROJECT









WILSON SITE  
QUAD: MINNEHAHA  
CREEK SOUTH  
SEC. 5, T2N, R38E  
TREASURE COUNTY, MT.  
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NO. 2 SITE  
CROW ROCK SE QUAD  
T13N, R45E, SEC. 29  
CUSTER COUNTY  
SE MONTANA PROJECT



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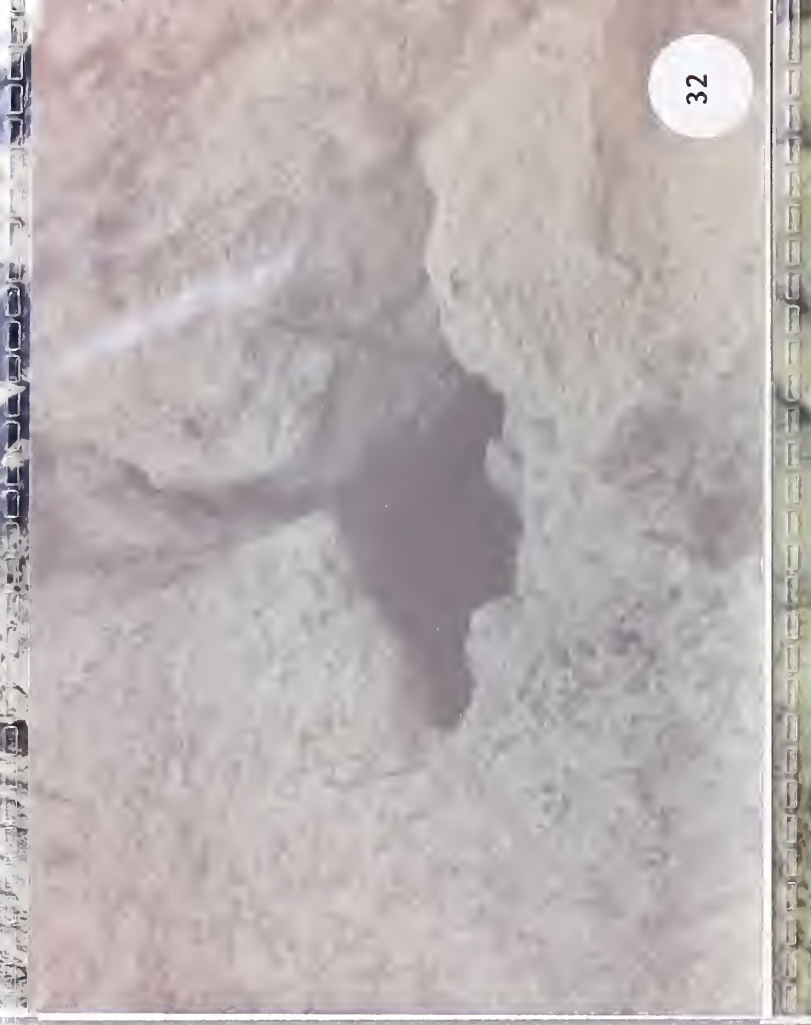


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FTY RANCH SITE  
QUAD: REANUS CONE  
SEC. 13, T8S, R46E  
POWDER RIVER CO., MT.  
S.E. MONTANA PROJECT  
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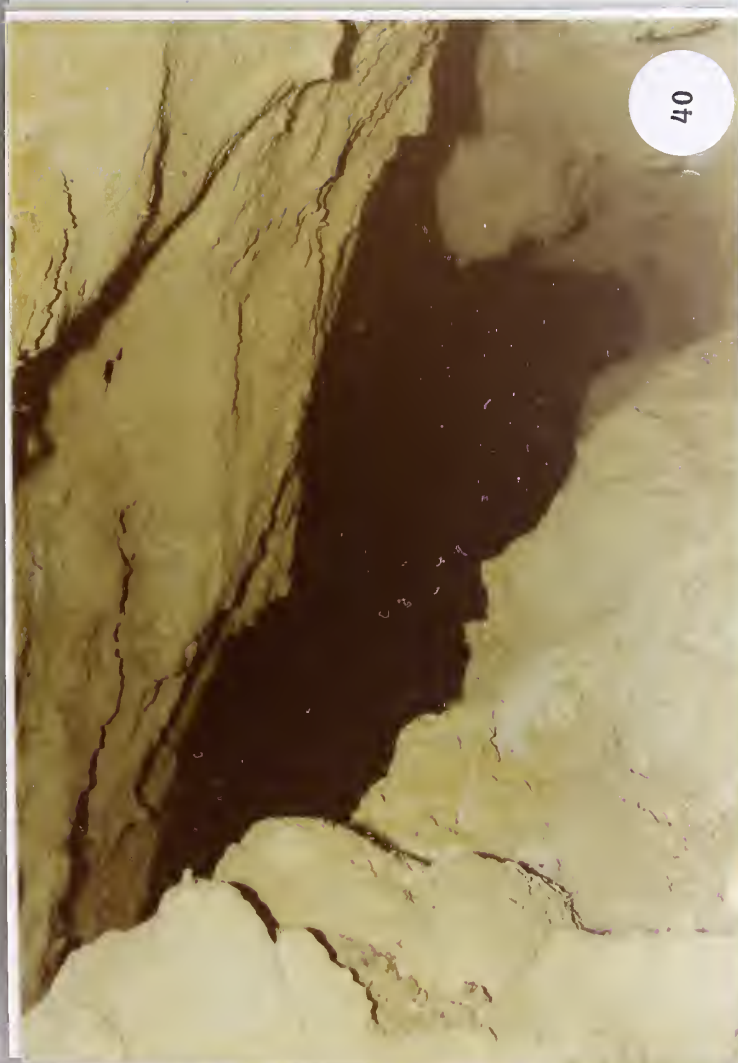
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REANUS CONE QUAD  
T8S, R46E, SEC. 13  
POWDER RIVER COUNTY  
SE MONTANA PROJECT





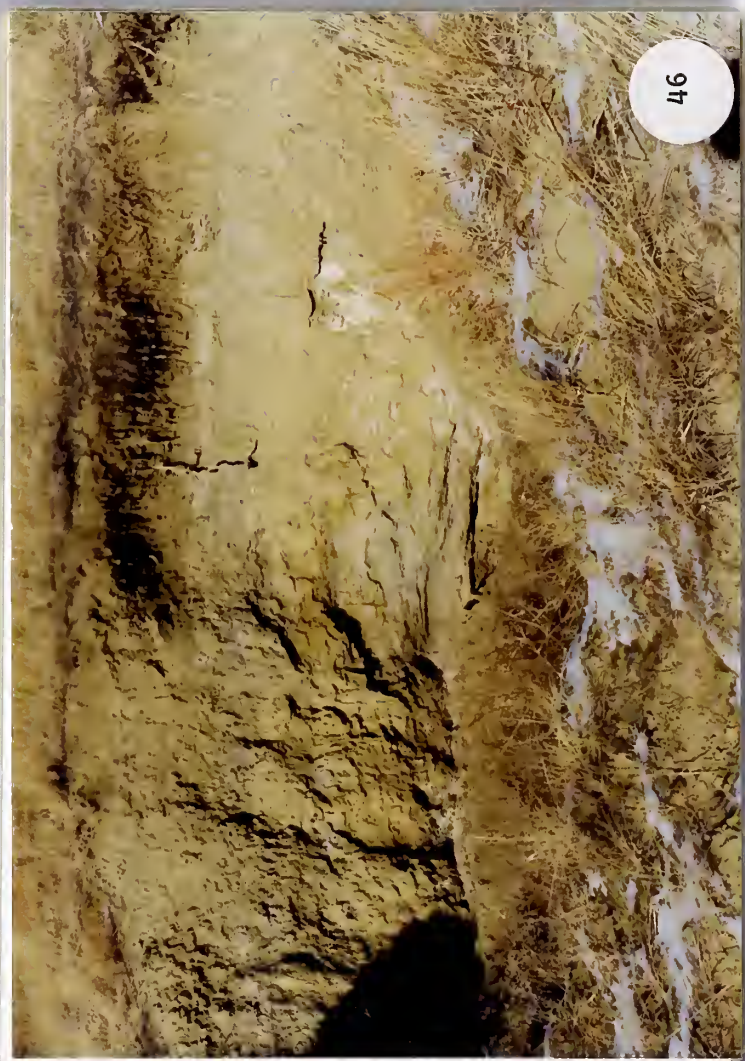
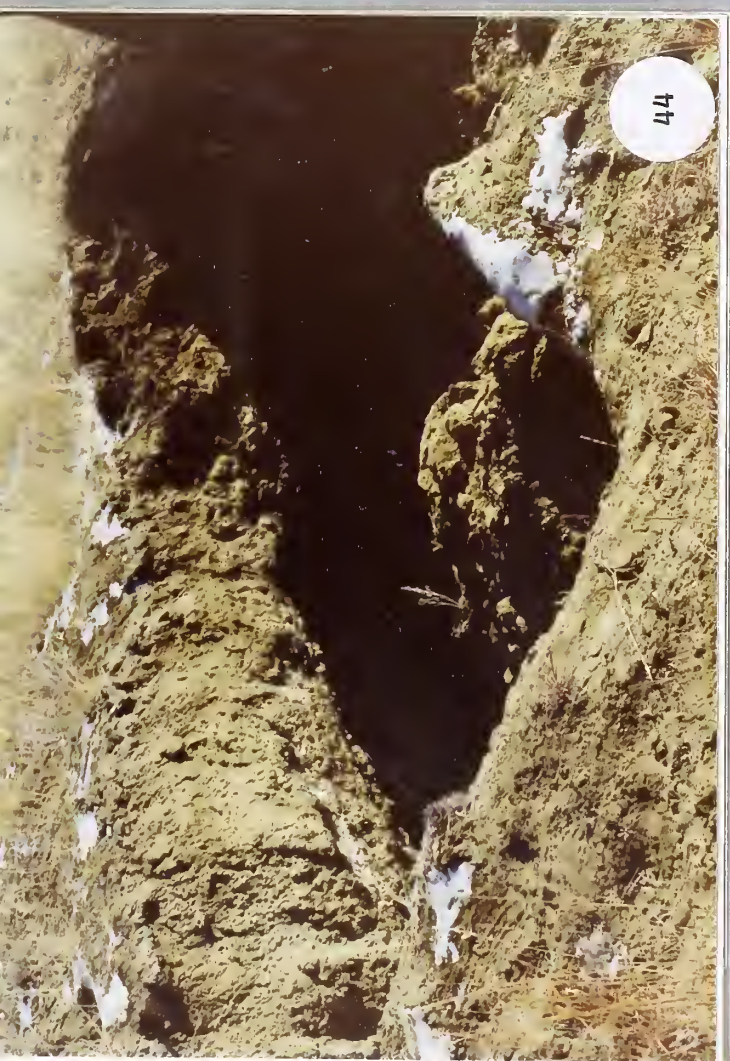


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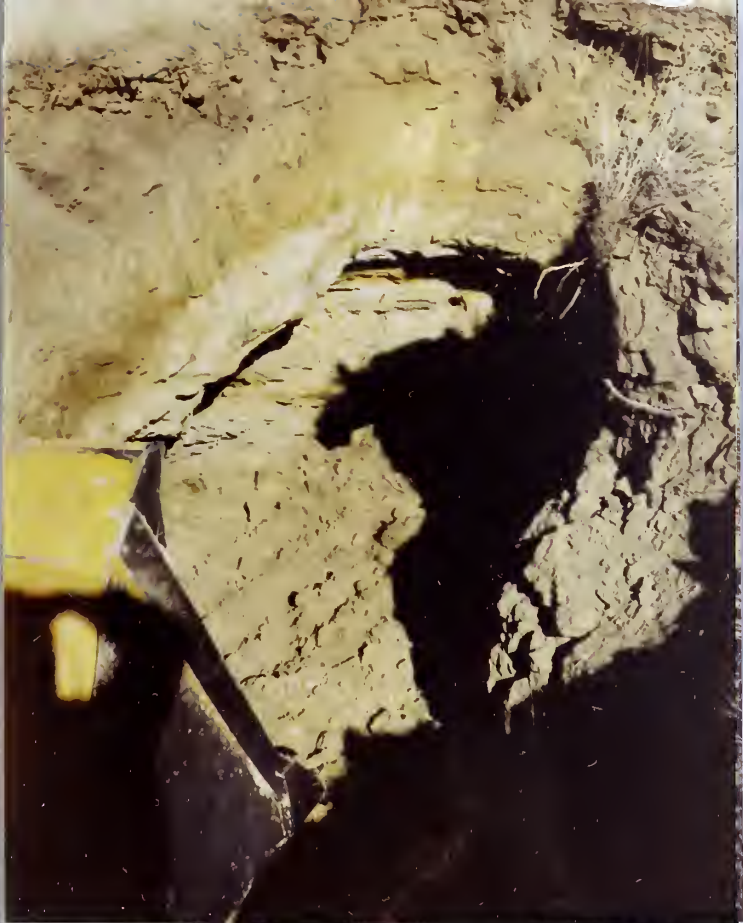
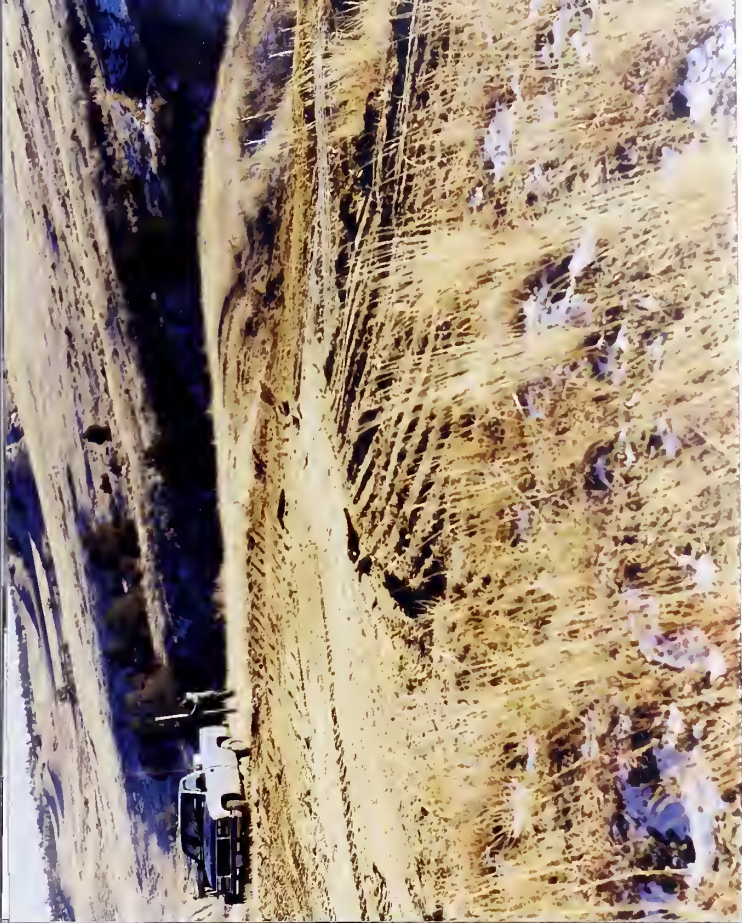


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FTY RANCH SITE  
QUAD: REANUS CONE  
SEC. 13, T8S, R46E  
POWDER RIVER CO., MT.  
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BRYAN SITE  
COLEMAN DRAW QUAD  
T3S, R46E, SEC. 18  
POWDER RIVER COUNTY  
SE MONTANA PROJECT













COAL CREEK SITE  
WILLOW CROSSING QUAD  
T3S, R45E, SEC.3  
POWDER RIVER COUNTY  
SE MONTANA PROJECT



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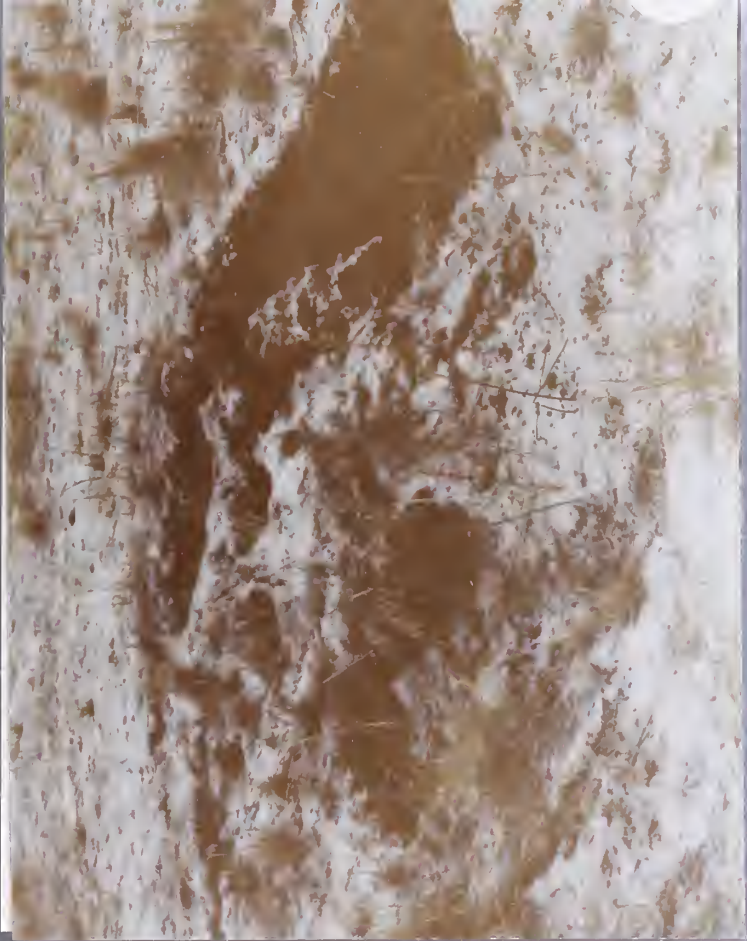


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GUSTAVSEN SITE  
THREEMILE BUTTE QUAD  
T4S, R47E, SEC.18  
POWDER RIVER COUNTY  
SE MONTANA PROJECT











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TRUSLER SITE  
QUAD: ASHLAND MT.  
SEC. 13, T3S, R4E  
ROSEBUD COUNTY, MT.  
S.E. MONTANA PROJECT  
DSL AMRB 90-018

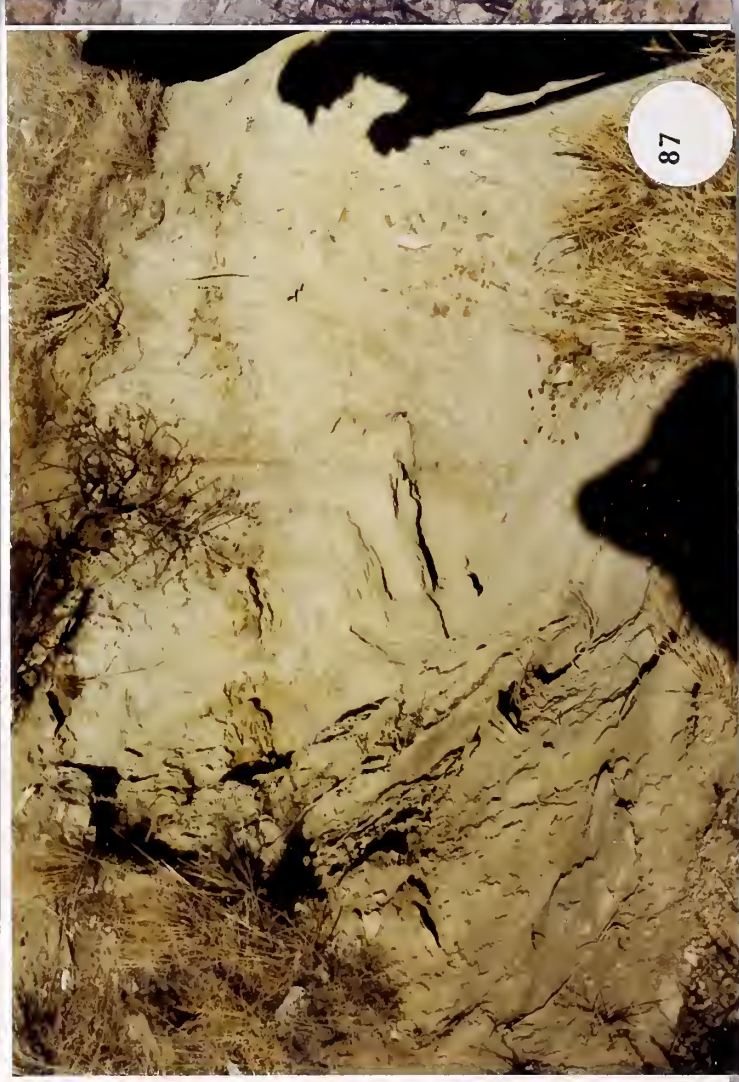
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TRUSLER SITE  
ASHLAND MT. QUAD  
T3S, R44E, SEC.13  
ROSEBUD COUNTY  
SE MONTANA PROJECT





JOPPA SITE  
THURLOW QUAD  
T6N, R43E, SEC. 24  
ROSEBUD COUNTY  
SE MONTANA PROJECT

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MEES SITE  
QUAD: CRAIN PLACE.  
SEC. 24, T4N, R43E  
ROSEBUD COUNTY, MT.  
S.E. MONTANA PROJECT  
DSL AMRB 90-018





MEES SITE  
CRAIN PLACE QUAD  
T4N, R43E, SEC.24  
ROSEBUD COUNTY  
SE MONTANA PROJECT



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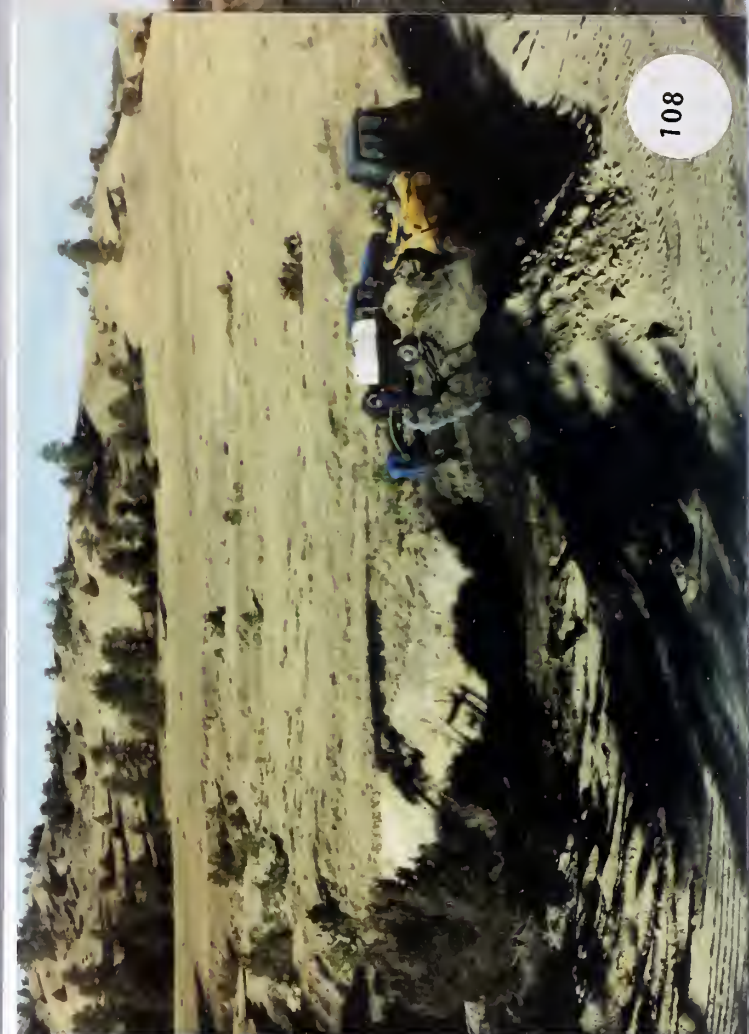


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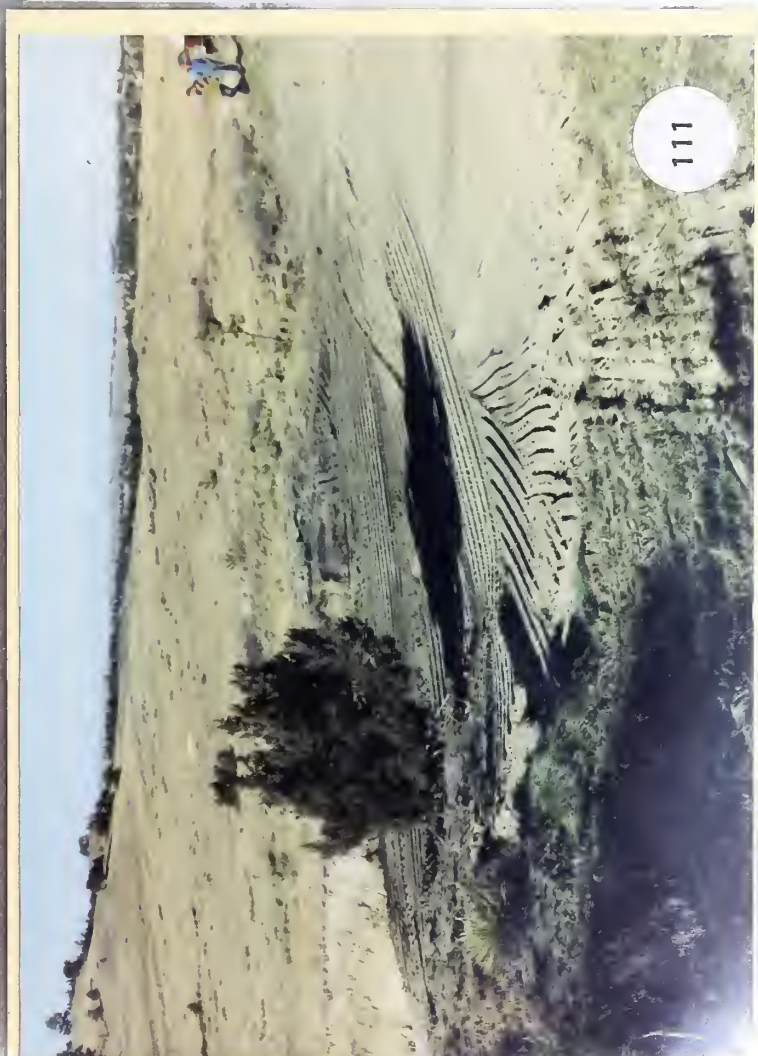
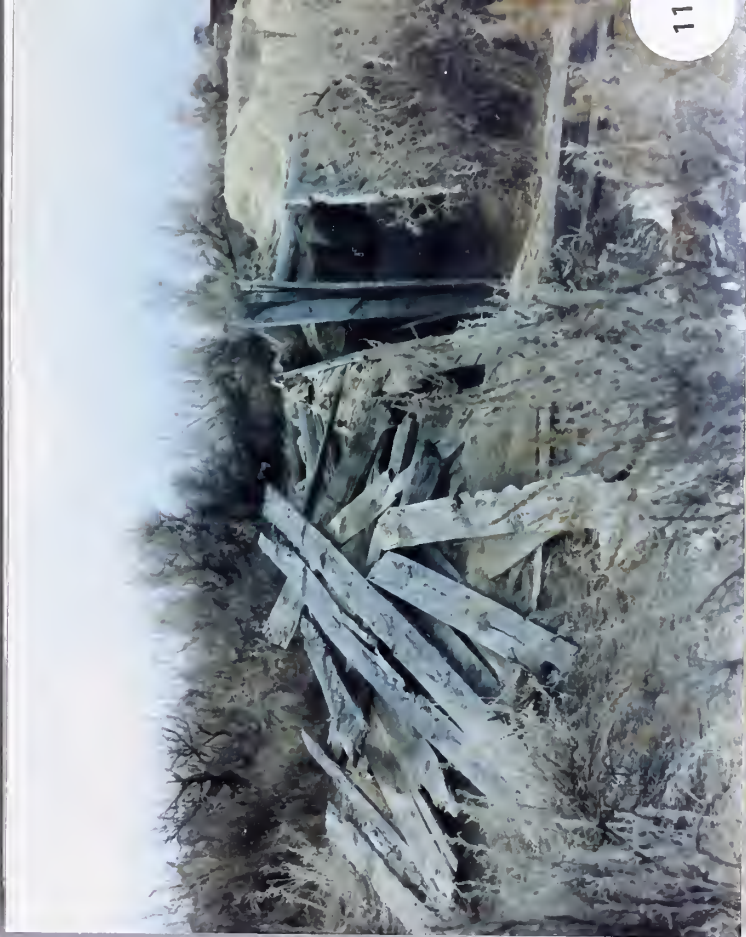








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MCKAY SITE  
JIM TOWN QUAD  
T1S, R41E, SEC. 34  
T2S, R41E, SEC. 3  
ROSEBUD COUNTY  
SE MONTANA PROJECT

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MCKAY SITE  
QUAD: JIM TOWN  
SEC. 34, T1S, R41E  
3, T2S, R41E  
ROSEBUD COUNTY, MT.  
S.E. MONTANA PROJECT  
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KLEIN REVEG.SITE  
ROUNDUP QUAD  
T8N, R23E, SEC. 36  
MUSSELSHELL COUNTY  
SE MONTANA PROJECT



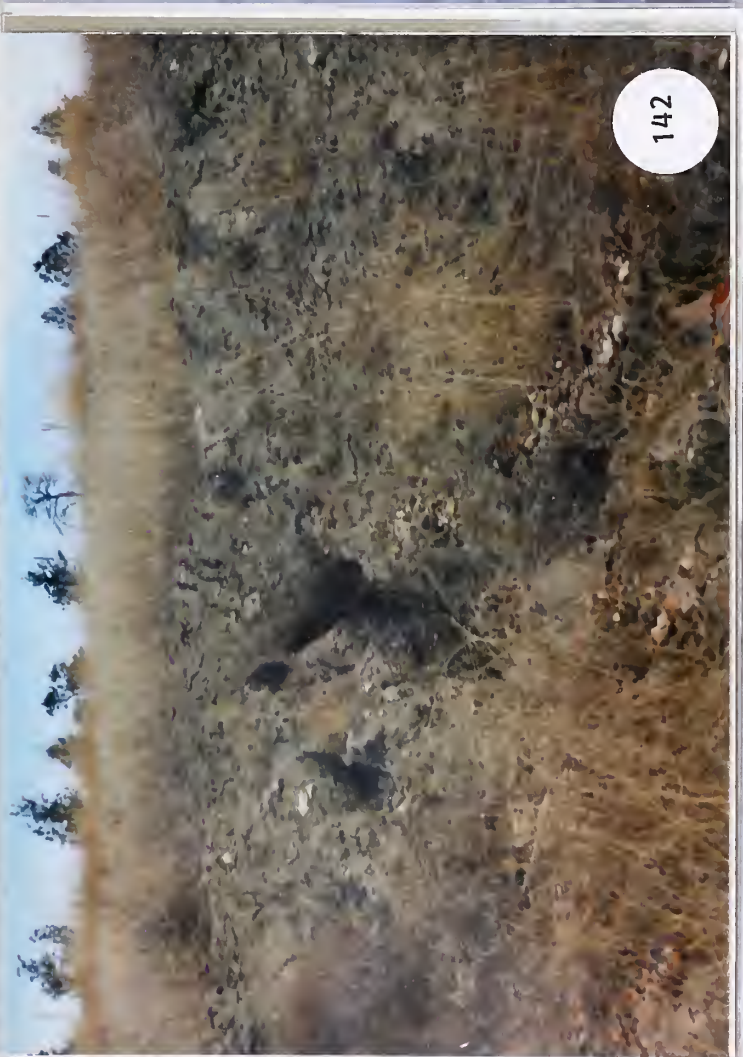




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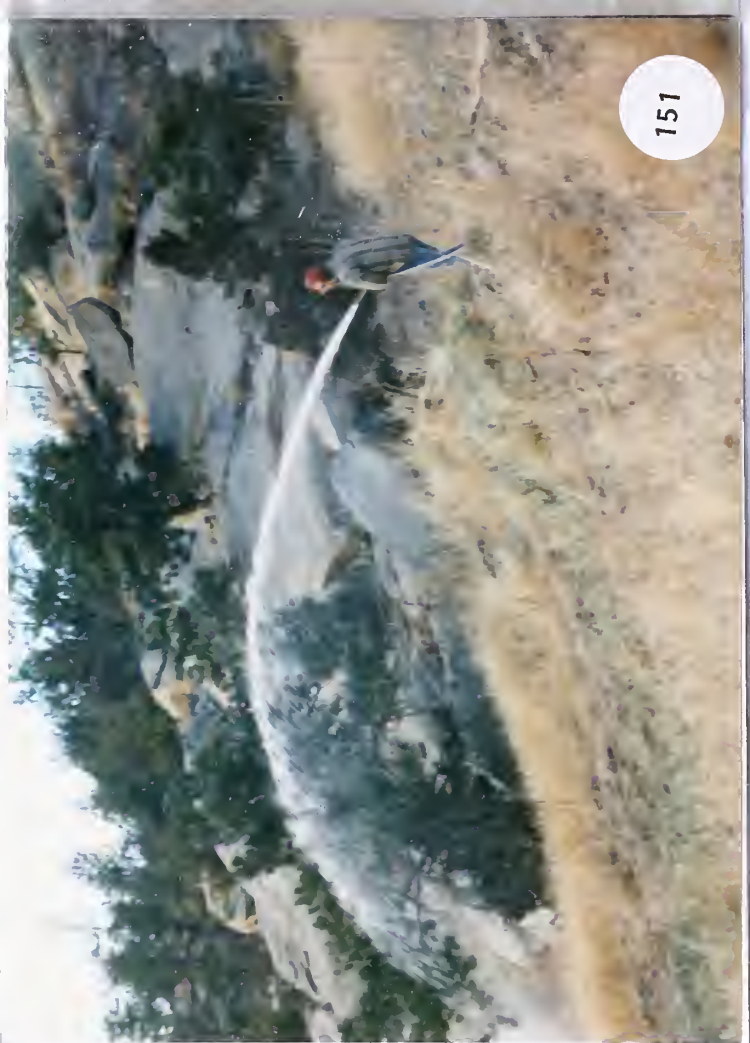
KLEIN REVEG. SITE  
QUAD: ROUNDUP.  
SEC. 4, T7N, R26E  
MUSSELSHELL CO. MT.  
S.E. MONTANA PROJECT  
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KLEIN REVEG. SITE  
QUAD: ROUNDUP.  
SEC. 4, T7N, R26E  
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**BIG UNION SITE  
GAGE QUAD  
T7N, R26E, SEC.4  
MUSSELSHELL COUNTY  
SE MONTANA PROJECT**





BIG UNION SITE  
QUAD: CRAIN PLACE.  
SEC. 4, T7N, R26E  
MUSSELSHELL CO. MT.  
S.E. MONTANA PROJECT  
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